CLINICAL INFORMATION RESOURCE NETWORK PATIENT DEMOGRAPHICS (CIRN-PD) and MASTER PATIENT INDEX (MPI) INSTALLATION AND IMPLEMENTATION GUIDE

Version 1.0

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Department of Veterans Affairs
V*IST***A** Technical Services

Preface

The key objectives of the Clinical Information Resource Network (CIRN) project are to identify the sites where a patient is receiving care, to share the clinical data for a patient between those sites, to create and to maintain a clinical repository at each site reflecting patient care delivered throughout the Veterans Health Administration (VHA). The clinical repository must store clinical essentials of data important to primary and longitudinal patient care, accommodate data from external sites (VHA and non-VHA), facilitate decision support, manage data independently of departmental application storage policies, support longitudinal record growth, and support evolution of data classes stored.

The complete CIRN package is comprised of CIRN Patient Demographics (CIRN-PD) Pre-Installation and Implementation, CIRN Clinical Repository (CIRN-CR) and CIRN Patient Demographics (CIRN-PD). This manual covers only those elements that are used by the CIRN Patient Demographics module. Information that is exclusive to CIRN Clinical Repository module is not covered. Manuals for the Clinical Repository portion of CIRN will be available with the CIRN 1.5 release..

At the current time, CIRN and Master Patient Index **V***IST***A** (MPI) are distributed and installed together. This manual covers the installation information for both packages.

Reference Material

CIRN-PD manuals include:

CIRN Patient Demographics (CIRN-PD) Pre-Installation and Implementation Guide
CIRN Patient Demographics (CIRN-PD) and Master Patient Index (MPI) Installation and Implementation Guide,
CIRN Patient Demographics (CIRN-PD) Technical Manual,
CIRN Patient Demographics (CIRN-PD) Patient Administration User Manual,
CIRN Patient Demographics (CIRN-PD) HL7 Interface Manual,

Manuals for the Clinical Repository portion of CIRN will be available with the CIRN 1.5 release.

You should also become familiar with the Master Patient Index (MPI **V***IST***A**) documentation. MPI manuals include:

Master Patient Index (MPI) **V***IST***A** *HL7 Interface Specifications*
Master Patient Index (MPI) **V***IST***A** *User Manual*
Master Patient Index (MPI) **V***IST***A** *Technical Manual*
Master Patient Index (MPI) **V***IST***A** *Monograph*
Master Patient Index (MPI) **V***IST***A** *Release Notes*

One of the major pre-implementation tasks for CIRN is the merging of duplicate patient records at a site. The *Duplicate Record Merge: Patient Merge (Patch XT*7.3*23) User Manual* is required for this task.

NOTE: After CIRN PD/MPI is installed, the Merge Utility (XT*7.3*23) can not be used to merge patient records. Sites should make every attempt to resolve potential duplicates. Once sites initialize against the MPI, any unresolved duplicates will have to be held in abeyance until the merge software becomes "CIRN aware". It is recommended that the option to merge patient records be placed out of order until that time.

Because of the close interaction of CIRN with other packages, the user may find it helpful to review documentation for **V***IST***A** Health Level 7 (HL7) V. 1.6, updates to the Patient Information Management System (PIMS) V. 5.3 Admission-Discharge-and Transfer (ADT) module documentation, Run Time Library V. 2.1, and Extensible Editor V. 2.6.

Acknowledgment

CIRN was inspired by the Regenstrief Medical Record System from the Regenstrief Institute of Indianapolis, Indiana.

Dedication

In memory of Georgia Sehon: respected colleague, accomplished professional, and valued member of the CIRN team.

Table of Contents

Package Management

Name and Number Spaces

The CIRN package namespace is RG, excluding RGED (reserved for Extensible Editor) and RGUT (reserved for Run Time Library) and the file range is 990-995 and 997-999.99.(File range 996-996.99 is reserved for Extensible Editor.)

External Relations

The following packages (fully patched) must be installed at the site:

CAUTION!!
DO NOT INSTALL HL*1.6*39 in any TEST account!
If you install this patch in your test account, you will link your test account to all the other production accounts. Since there are similarities (e.g., patient names/data) in test and production, it would not be good for data from the test account to be transmitted to the production account at another site.

Application	Version # and Patches
CIRN	Version 0.5
Scheduling	Version #5.3 SD*5.3*185
PIMS	Version #5.3 DG*5.3*149
HL7	Version #1.6 HL*1.6*17 HL*1.6*19 HL*1.6*26 HL*1.6*35 HL*1.6*39T16 (in Production account only) HL*1.6*41 HL*1.6*43 HL*1.6*51
MailMan	Version #7.1 XM*DBA*115
KERNEL	Version #8 XU*8*24 XU*8*41 XU*8*43 XU*8*44 XU*8*49 XU*8*67 XU*8*68 XU*8*69

	XU*8*85 XU*8*94 XU*8.0*111
KERNEL Toolkit	Version #7.3 Duplicate Resolution patch XT*7.3*23
VA FileMan	Version #21
Extensible Editor	Version 2.6
Run Time Library	Version 2.1
Pharmacy	If current version of Inpatient Medications is V. #4.5: PSJ*4.5*43 If current version of Outpatient Pharmacy is V. #6.0: PSO*6*156 If running Computerized Patient Record System (CPRS), and: current version of Outpatient Pharmacy is V. #7.0: PSO*7*11

NOTE: If you are a Caché site and are planning to use a multi-threaded listener (which is recommended), you will need patch XU*8.0*78.

Legal Requirements

This package does not impose any additional legal requirements on the user. All users are reminded that many of the reports generated by this package contain confidential patient information and should be treated accordingly.

Capacity Management and System Diagnostics

The Capacity Management team will work closely with sites to determine whether the workload associated with CIRN will affect the system negatively. They have also developed a number of tools that monitor the system to provide benchmarking data for further study and process improvement. These may include:

- Statistical Analysis of Global Growth (SAGG) - focuses on package-specific impact on data storage, monitors global and file usage.
- Resource Usage Monitor (RUM) - measures resource consumption by package. **Sites that elect to install and use the Resource Use Monitor package should do so prior to any of the CIRN installation steps.**
- VAX Performance Analyzer (VPM) - monitors system and stores a key subset of data associated with configuration, database activity, response time, central processing unit (CPU), memory and Input/Output (I/O) utilization.

Other system diagnostics that should be performed are:
Transmission Control Protocol/Internet Protocol (TCP/IP) Testing: For the Digital Equipment Corporation (DEC) Alpha sites which were not old 486 sites, test the TCP/IP connection via a "PING" function or other method. This insures that the software and hardware mechanisms associated with this communications protocol are prepared to function. It is also a preventive diagnostic for communications with the MPI Austin.

Hardware Requirements

CIRN is designed to run on standard or upgraded Alpha AXP clusters with Virtual Memory System (VMS) or on New Technology (NT) and Open M. TCP/IP setups will have to be in place (see Appendix E).

CIRN and MPI **V***IST***A** use TCP/IP as the communications protocol for transmitting and receiving patient information. Use existing system tools for fine-tuning your TCP/IP capabilities.

Space Requirements

If using TCP/IP, outgoing messages will consume approximately 10-20 k/message Mb of space in the ^HL globals for 40,000-50,000 active patients. Incoming messages will consume approximately 15-25 Mb of space.

If not using TCP/IP, outgoing messages consume approximately 22-25 k/message Mb of space in the ^HL globals for 40,000-50,000 active patients. Incoming messages consume approximately 35-40 Mb of space.

Auditing

Patch DG*5.3*149 added new cross references to the following Patient file (#2) fields, to assist CIRN in monitoring changes made to these fields. During the normal daily operations of CIRN, it is possible that these fields may be updated by CIRN HL7 Messaging. Patch DG*5.3*231 exported with CIRN PD/MPI KERNEL Installation and Distribution System (KIDS) build enables auditing for the following fields so they can be monitored by CIRN.

Sex
Date of Birth
Marital Status
Religious Preference
Social Security Number
Street Address [Line 1]
Zip+4
Street Address [Line 2]
Street Address [Line 3]

City
State
County
Phone Number [Residence]
Phone Number [Work]
K-Name of Primary NOK
K-Phone Number
Mother's Maiden Name
Service Connected?
Service Connected Percentage
Employment Status
Period of Service
Date of Death
Type
Veteran (Y/N)?

The DG Security Log file (#38.1), Field #2 Security Level is also monitored for changes to patient sensitivity.

Global Information

Globals included in the installation are shown in the File List.

The following globals need to be placed on the system:

^RG* (^RGSITE, RGHL7 ^RGEQASN, ^RGEQEXC, ^RGSTAT, ^RGEQ) - minimal anticipated growth
^MPIF - no anticipated growth

You will need to reboot your system for translations to take effect.
Check disk space for 150 Mb of available space for growth in ^HL Based on Test Site information, projected growth of the ^DIA (audit global) is 400-500Mb over a one year period.

Global configuration

Alpha Cluster(DSM): The globals should be placed and protected on the proper volume set using the %GLOMAN utility.

Open M: Use the GUI Global utility to add and place the globals. Default global attributes should be used.

	System Owner	**World**	**Group**	**UCI/USER NET**
Alpha (DSM)	RWP	RWP	RWP	RWP
Open M	RWD	R	R	RWD

Routine Mapping

Several templates associated with the Patient file (#2) are compiled during DG*5.3*231 portion of the CIRN/MPI installation. If any of the following routine namespaces are currently mapped at your site, they should be unmapped prior to starting the installation. If your site cannot map/unmap using the * wildcard, a complete list of the mapped/unmapped routines can be found in Appendix I.

A1CKC*	DGPTX1*
DGRPTX*	DGRPXC*
DGRPXCR*	DGRPXX7*
DVBAXA*	DVBHCE*
DVBHCG*	GMRDSTR*
GMRDSTV*	IBXBCR2*
IBXSC1*	IBXSC2*
MCARORB*	SDM1T*
TIUPREL*	

Journaling

Journaling should be off during the installation but should be enabled afterwards for ^RG*.

NOTE: HL*1.6*52 has recommendations for HL7 global journaling that should be reviewed. The CIRN and MPI packages both heavily use HL7 messaging.

HL7 Management

CIRN/MPI makes heavy use of HL7 messaging. The HL7 globals should be checked for sufficient room for growth. In addition, check to see if the HL7 patch, HL*1.6*39, properly brought in all of the sites HL Logical Link file (#870) and set the Queue Size field (#21) to ten. Also each site that is running UCX (non-Caché) will need to change their sites (VA<your site's three letter abbreviation> TCP) HL Lower Level Protocol Parameter file (#869.2) entry, field TCP/IP Service Type (#400.03) to M for Multi Listener Server. See patch HL*1.6*19 for further instructions.

Installation Information

The CIRN PD/MPI V. 1.0 meta build contains the individual builds necessary for the installation of CIRN-PD and MPI. The individual builds are:

Build	Description	Dependencies
CIRN PATIENT DEMOGRAPHICS	CIRN Patient Demographics build.	DG*5.3*149 RG*0.5*3 EXTENSIBLE EDITOR V. 2.6 RUN TIME LIBRARY V. 2.1 CIRN 0.5 (Pre-implementation) HL*1.6*51 PSJ*4.5*43* PSO*6*156 if Outpatient Pharmacy V. 6.0 PSO*7*11 if Outpatient Pharmacy V. 7.0
CIRN MESSAGING COMPONENTS	This build includes all components associated with the CIRN MESSAGING SUPPORT build.	None
CIRN MESSAGING SUPPORT	This build contains various messaging support components required by the CIRN Demographic, Clinical, and MPI **V*IST*A** builds. It includes support for: 1) Event Queue 2) Exception Logging 3) Subscription Services 4) HL7 Utilities	HL*1.6*17 HL*1.6*19 HL*1.6*26 HL*1.6*35 HL*1.6*39 T16 (production only] HL*1.6*41 HL*1.6*43 XU*8.0*24 XU*8.0*41 XU*8.0*43 XU*8.0*44 XU*8.0*49 XU*8.0*67 XU*8.0*68 XU*8.0*85 XU*8.0*94 XU*8.0*111
Master Patient Index **V*IST*A**	MPI stand-alone **V*IST*A** build including MPI **V*IST*A** and CIRN Master of Record (CMOR) functionality.	None

DG*5.3*231	This patch turns audit ON for a number of fields in the Patient file (#2).	None

Time Estimates

Process	Time
CIRN-PD and MPI Installation from meta build	under 10 min.
Initialize to MPI Austin	1 hr to send to MPI 1.5-2.5 hrs to receive and process responses from MPI Austin This time is an estimate based upon whether your site is loading to the MPI at the same time as another site or is the only site loading to the MPI. If there are another site is loading to the MPI at the same time your site is and the other site started more than a few minutes before you started, there will be a longer delay in getting messages back from the MPI.
Treating Facility Updates and Subscription Initialization	1-2 hrs to send "add me" messages and receive back from CMOR complete lists. This process is concurrent to the processing of the returned messages from the MPI during the initialization process.
CMOR Comparison	1-2 hrs. depending on the number of patients that you are not the CMOR for.

NOTE: These times are estimates that can be impacted by network response issues and the number of other sites involved in initialization at the same time. The number of sites already initialized against the MPI-Austin that your site shares patients with can also impact the amount of time.

File List

The following file information is broken down according to the portion of the build the file appears in.

CIRN Patient Demographics Files

FILE #	NAME	Global	UP DATE DD	SEND SEC CODE	DATA COMES W/FILE	SITE DATA	RSLV PTS	USER OVER RIDE
991.8	CIRN SITE PARAMETER	^RGSITE(991.8,	YES	NO	NO			

CIRN Messaging Components

There are no files associated with the CIRN Messaging Components.

CIRN Messaging Support

FILE #	NAME	Global	UP DATE DD	SEND SEC CODE	DATA COMES W/FILE	SITE DATA	RSLV PTS	USER OVER RIDE
990.8	CIRN REPOSITORY SITE PARAMETER	^RGSITE("COR",	YES	NO	YES	OVER	NO	NO
991.1	CIRN HL7 EXCEPTION LOG	^RGHL7(991.1,	YES	YES	NO			
991.11	CIRN HL7 EXCEPTION TYPE	^RGHL7(991.11	YES	YES	YES	OVER	YES	NO
995	CIRN EVENT ASSOCIATION DATA SCREEN: I $P(^(0),U)="SCN_REQ"!($P(^(0),U,1)["MPIF")	^RGEQASN(	YES	YES	YES	OVER	YES	NO
995.1	CIRN EVENT EXCEPTION	^RGEQEXC(	YES	YES	NO			
995.2	CIRN EVENT STATISTICS	^RGSTAT(995.2,	YES	YES	NO			

Master Patient Index **VISTA**

FILE #	NAME	Global	UP DATE DD	SEND SEC CODE	DATA COMES W/FILE	SITE DATA	RSLV PTS	USER OVER RIDE
984.1	MASTER PATIENT INDEX (LOCAL NUMBERS)	^MPIF(984.1,	YES	YES	NO			
984.5	MPI CHECKDIGIT	^MPIF(984.5,	YES	YES	YES	OVER	NO	NO
984.8	MPI ICN BUILD MANAGEMENT	^MPIF(984.8,	YES	YES	YES	OVER	NO	NO
984.9	MPIF CMOR REQUEST	^MPIF(984.9,	YES	YES	NO			

*DG*5.3*231*

FILE #	NAME	Global	UP DATE DD	SEND SEC CODE	DATA COMES W/FILE	SITE DATA	RSLV PTS	USER OVER RIDE
2	PATIENT Partial DD: subDD: 2 fld: .02 fld: .03 fld: .05 fld: .08 fld: .09 fld: .111 fld: .1112 fld: .112 fld: .113 fld: .114 fld: .115 fld: .117 fld: .131 fld: .132 fld: .211 fld: .219 fld: .2403 fld: .301 fld: .302 fld: .31115 fld: .323 fld: .351 fld: 391 fld: 1901	^DPT(	YES	YES	NO			

Routines

The routine lists are shown according to the build in which they are exported.

CIRN Patient Demographics Routines

RGJCTS01	RGJUSITE	RGMTAUD	RGMTAUDP	RGMTDPCT
RGMTDPSC	RGMTTFL	RGPDENV	RGPDPST	RGPRELIG
RGPRSSN	RGRSBUL1	RGRSBULL	RGRSDYN	RGRSDYN1
RGRSDYN2	RGRSENS	RGRSMSH	RGRSPAR1	RGRSPAR2
RGRSPARM	RGRSPARS	RGRSPT	RGRSUTIL	RGRSUTL2
RGRSWPT	RGRSZZPT	RGVCCMR1	RGVCCMR2	

CIRN Messaging Components

There are no routines exported with CIRN Messaging Components.

CIRN Messaging Support

RGEQ	RGEQDMN	RGEQDMN1	RGEQERR	RGEQEXC
RGEQRPT	RGEQSTAT	RGEQSUB	RGHLEXC	RGHLEXC1
RGHLLOG	RGHLPOST	RGHLUT	RGHOUT	RGJCREC
RGJCSUB	RGMSENV			

MPI **V***IST***A**

MPIF001	MPIFA31I	MPIFAPI	MPIFBT1	MPIFBT2
MPIFCMOR	MPIFDEL	MPIFEDIT	MPIFHL7	MPIFMER
MPIFNEW	MPIFNQ	MPIFPST	MPIFQ0	MPIFQ1
MPIFQED	MPIFQUE3	MPIFQUE4	MPIFQUE5	MPIFREQ
MPIFRES	MPIFRESS	MPIFREV	MPIFRTC	MPIFSAQ
MPIFSPC	MPIFUTL	MPIFVTQ		

*DG*5.3*231*

DG53231P				

CIRN Bulletins

RG CIRN DEMOGRAPHIC ISSUES: This mail group is sent the following patient related and Master File update bulletins. It is also used when Exception Messages are generated related to patient data. More detailed information on these bulletins can be found in Appendix F.

Patient Related Bulletin	Cause	Action to take
MISSING DATA	Name, Date of Birth (DOB), or Integration Control Number (ICN) field is missing or null in the incoming message.	Contact National **V*IST*A** Support (NVS) Help Desk for assistance.
PATIENT NOT FOUND	Patient ICN referenced in HL7 message cannot be found in receiving site database.	Contact National **V*IST*A** Support Help Desk for assistance.
INCONSISTENT DATA	Social Security Number (SSN) or CMOR data in message doesn't match information in receiving site database.	Contact National **V*IST*A** Support Help Desk for assistance.
REMOTE SENSITIVITY INDICATED	Patient is marked as sensitive at the sending site but not at receiving site.	No action: message is informational
REMOTE DEATH INDICATED	Patient has a date of death entered from the sending site but not at the receiving site.	No action: message is informational
CIRN ADDRESS CHANGE	Address related information: fields were deleted based on information received from the CMOR.	No action

The Master File Update bulletins going to MPI Austin differ from the patient related bulletins in that the data being passed is different.

Master File update Bulletin	Cause	Action to take
PATIENT NOT FOUND	Patient ICN referenced in HL7 message cannot be found in receiving site database.	Contact National **V*IST*A** Support Help Desk for assistance.
INCONSISTENT DATA	CMOR doesn't match	Contact National **V*IST*A** Support Help Desk for assistance.

Exception Handling Messages

CIRN's exception handler generates messages to alert the user of problems that occur in generating or processing HL7 messages. See Appendix F for examples of messages that may be received during the implementation phase and what should be done with each message.

CIRN/MPI Mail Groups

Mailgroup	Suggested Coordinator	Suggested Members
RG CIRN DEMOGRAPHIC ISSUES	Patient Admin Coordinator/Medical Administration Service (MAS) Automated Data Processing Application Coordinator (ADPAC)	Personnel that deal with patient data.
RG CIRN HL7 PROBLEMS	Person who will monitor CIRN HL7 problems.	Person who will monitor CIRN HL7 problems.
MPIF EXCEPTIONS	Information Resource Management (IRM) person who will be monitoring the technical type problems that can occur during messaging.	IRM person who will be monitoring the technical type problems that can occur during messaging.
MPIF CMOR REQUEST	Person who will monitor CMOR Change Requests.	Personnel that will process CMOR Change Requests.
MPIF HL7 GROUP	IRM Staff	No members should be placed in this mail group. This group is used to transmit HL7 messages to the MPI via MailMan.

Installation

Production Account Installation

Installation and testing in a test account prior to installation in the production account is recommended. A separate build, TEST ACCT CIRN PD/MPI 1.0, is provided for test accounts. Use the Special Instructions for Test Account Installations found in Appendix B.

Sites that elect to install and use the Resource Use Monitor package should do so prior to any of the CIRN installation steps.

1. **Check that all required patches have been installed prior to attempting to install CIRN-PD/MPI.**

2. **Make system backup**

3. **Global Placement**
   The following globals need to be placed on the system:

   ^RG* (, ^RGSITE, ^RGHL7, ^RGEQASN, ^RGEQEXC, ^RGSTAT, ^RGEQ) - minimal anticipated growth
   ^MPIF - no anticipated growth

   You will need to reboot your system for translations to take effect.
   Check disk space for 150 Mb of available space for growth in ^HL

4. **Routine Mapping**

   Several templates associated with the Patient file (#2) are compiled during DG*5.3*231 portion of the CIRN/MPI installation. If any of the following routine namespaces are currently mapped at your site, they should be unmapped prior to starting the installation. If your site cannot map/unmap using the * wildcard, a complete list of the mapped/unmapped routines can be found in Appendix I.

A1CKC*	DGPTX1*
DGRPTX*	DGRPXC*
DGRPXCR*	DGRPXX7*
DVBAXA*	DVBHCE*
DVBHCG*	GMRDSTR*
GMRDSTV*	IBXBCR2*
IBXSC1*	IBXSC2*
MCARORB*	SDM1T*
TIUPREL*	

5. Installation File

Be sure that you have received and have access to the KIDS installation file needed to install.

6. Set-up Environment variables

Sign into the account where the package is to be installed. Check that your DUZ is set to a valid user number and DUZ(0)=@ and U="^", along with the other environment variables. This can be accomplished via D ^XUP.

7. Note that the following options will be disabled during the installation:

DG REG*	
DG RUG*	
DG LOAD PATIENT DATA	Load/Edit Patient Data
DG DEATH ENTRY	Death Entry
DG PATIENT INQUIRY	Patient Inquiry
DGRPT 10-10T REGISTRATION	10-10T Registration
DG SEC*	
OR	
DG SECURITY OFFICER MENU	Security Officer Menu
DG SECURITY DISPLAY LOG	Display User Access to Patient Record
DG SECURITY ENTER/EDIT	Enter/Edit Patient Security Level
DG SECURITY PURGE LOG	Purge Record of User Access from Security Log
DG SECURITY PURGE PATIENTS	Purge Non-sensitive Patients from Security Log
SDPRLETTERS	Print Scheduling Letters

8. Proceed with KIDS installation

From the KIDS Installation menu, select the Load A Distribution option to load the RG_1_0.KID file. Use the Verify Checksums In Transport Global to verify that all routines have the correct checksum. Then, choose the Install Package(s) option.

8. Install CIRN 1.0

Load

```
Select Kernel Installation & Distribution System Option:  Installation
Select Installation Option: Load a Distribution
Enter a Host File: RG_1_0.KID
KIDS Distribution saved on Feb 24, 1999@14:41:19
Comment: RN

This Distribution contains Transport Globals for the following Package(s):
     CIRN PD/MPI 1.0
     CIRN PATIENT DEMOGRAPHICS 1.0
     CIRN MESSAGING COMPONENTS 1.0
     CIRN MESSAGING SUPPORT 1.0
     MASTER PATIENT INDEX VISTA 1.0
     DG*5.3*231

Want to Continue with Load? YES// <RET>
Loading Distribution...

   CIRN PD/MPI 1.0
Want to RUN the Environment Check Routine? YES// <RET>
   CIRN PATIENT DEMOGRAPHICS 1.0
   CIRN MESSAGING COMPONENTS 1.0
   CIRN MESSAGING SUPPORT 1.0
   MASTER PATIENT INDEX VISTA 1.0
   DG*5.3*231
Use INSTALL NAME: CIRN PD/MPI 1.0 to install this Distribution.
```

Installation

```
Select Installation Option: INstall Package(s)
Select INSTALL NAME: CIRN PD/MPI 1.0          Loaded from Distribution

This Distribution was loaded on Apr 08, 1999@08:03:56 with header of
CIRN Patient Demographics/Master Patient Index 1.0  ;Created on Apr 08,
1999@10:23:17
It consisted of the following Install(s):
     CIRN PD/MPI 1.0
     CIRN PATIENT DEMOGRAPHICS 1.0
     CIRN MESSAGING COMPONENTS 1.0
     CIRN MESSAGING SUPPORT 1.0
     MASTER PATIENT INDEX VISTA 1.0
     DG*5.3*231

   CIRN PD/MPI 1.0

Install Questions for CIRN PD/MPI 1.0


   CIRN PATIENT DEMOGRAPHICS 1.0
Will first run the Environment Check Routine, RGPDENV
```

```
Environment check is ok.

Install Questions for CIRN PATIENT DEMOGRAPHICS 1.0

Incoming Files:

   991.8     CIRN SITE PARAMETER

Incoming Mail Groups:

Enter the Coordinator for Mail Group 'RG CIRN DEMOGRAPHIC ISSUES':      <site
should select an appropriate coordinator

Enter the Coordinator for Mail Group 'RG CIRN HL7 PROBLEMS': <site should
select an appropriate coordinator

Want KIDS to Rebuild Menu Trees Upon Completion of Install? YES//  NO

   CIRN MESSAGING COMPONENTS 1.0

Install Questions for CIRN MESSAGING COMPONENTS 1.0


Incoming Mail Groups:

Want KIDS to Rebuild Menu Trees Upon Completion of Install? YES//  NO

   CIRN MESSAGING SUPPORT 1.0
Will first run the Environment Check Routine, RGMSENV


Install Questions for CIRN MESSAGING SUPPORT 1.0

Incoming Files:

   990.8     CIRN REPOSITORY SITE PARAMETER  (including data)

   991.1     CIRN HL7 EXCEPTION LOG

   991.11    CIRN HL7 EXCEPTION TYPE  (including data)

   995       CIRN EVENT ASSOCIATION  (including data)

   995.1     CIRN EVENT EXCEPTION

   995.2     CIRN EVENT STATISTICS
```

```
   MASTER PATIENT INDEX VISTA 1.0

Install Questions for MASTER PATIENT INDEX VISTA 1.0

Incoming Files:

984.1     MASTER PATIENT INDEX (LOCAL NUMBERS)


   984.5     MPI CHECKDIGIT  (including data)


   984.8     MPI ICN BUILD MANAGEMENT  (including data)


   984.9     MPIF CMOR REQUEST

Incoming Mail Groups:

Enter the Coordinator for Mail Group 'MPIF HL7 GROUP': <site should select an
appropriate coordinator

Enter the Coordinator for Mail Group 'MPIF CMOR REQUEST': <site should select
an appropriate coordinator

Enter the Coordinator for Mail Group 'MPIF EXCEPTIONS': <site should select an
appropriate coordinator

Want KIDS to Rebuild Menu Trees Upon Completion of Install? YES// Yes

   DG*5.3*231

Install Questions for DG*5.3*231

Incoming Files:


   2         PATIENT  (Partial Definition)
Note:  You already have the 'PATIENT' File.


Want to DISABLE Scheduled Options, Menu Options, and Protocols? YES// <RET>

Enter options you wish to mark as 'Out Of Order': DG REG*

Enter options you wish to mark as 'Out Of Order': DG RUG*

Enter options you wish to mark as 'Out Of Order': DG LOAD PATIENT DATA
      Load/Edit Patient Data

Enter options you wish to mark as 'Out Of Order': DG DEATH ENTRY
Death Entry

Enter options you wish to mark as 'Out Of Order': DG PATIENT INQUIRY
Patient Inquiry
```

```
Enter options you wish to mark as 'Out Of Order': DGRPT 10-10T REGISTRATION
10-10T Registration

Enter options you wish to mark as 'Out Of Order': DG SEC*

Enter options you wish to mark as 'Out Of Order': SDPRLETTERS          Print
Scheduling Letters

Enter options you wish to mark as 'Out Of Order': <RET>

Enter protocols you wish to mark as 'Out Of Order': <RET>
Delay Install (Minutes):  (0-60): 0// <RET>
Enter the Device you want to print the Install messages.
You can queue the install by enter a 'Q' at the device prompt.
Enter a '^' to abort the install.

DEVICE: HOME// <RET>  INCOMING TELNET
```

NOTE: **Depending on your system and any locally added templates, your display may differ from what is shown here.**

```
 Install Started for CIRN PD/MPI 1.0 :
               Apr 08, 1999@08:08:06

 Installing Routines:
               Apr 08, 1999@08:08:06

 Updating Routine file...

 Updating KIDS files...

 CIRN PD/MPI 1.0 Installed.
               Apr 08, 1999@08:08:06

 Install Started for CIRN PATIENT DEMOGRAPHICS 1.0 :
               Apr 08, 1999@08:08:06

 Installing Routines:
               Apr 08, 1999@08:08:07

 Installing Data Dictionaries:
               Apr 08, 1999@08:08:08

 Installing PACKAGE COMPONENTS:

 Installing BULLETIN

 Installing INPUT TEMPLATE

 Installing MAIL GROUP

 Installing HL7 APPLICATION PARAMETER

 Installing PROTOCOL

 Installing OPTION
               Apr 08, 1999@08:08:11
```

```
 Running Post-Install Routine: PD^RGPDPST

 Updating Routine file...

 Updating KIDS files...

 CIRN PATIENT DEMOGRAPHICS 1.0 Installed.
               Apr 08, 1999@08:08:12..
Install Message sent #54760

 Install Started for CIRN MESSAGING COMPONENTS 1.0 :
               Apr 08, 1999@08:08:12
Installing Routines:
               Apr 08, 1999@08:08:12

 Installing PACKAGE COMPONENTS:

 Installing PRINT TEMPLATE

 Installing SORT TEMPLATE

 Installing INPUT TEMPLATE

 Installing MAIL GROUP

 Installing HL7 APPLICATION PARAMETER

 Installing PROTOCOL

 Installing OPTION
               Apr 08, 1999@08:08:14

 Running Post-Install Routine: MC^RGPDPST

 Updating Routine file...

 Updating KIDS files...

 CIRN MESSAGING COMPONENTS 1.0 Installed.
               Apr 08, 1999@08:08:15

 No link to PACKAGE file

 NO Install Message sent

 Install Started for CIRN MESSAGING SUPPORT 1.0 :
               Apr 08, 1999@08:08:15

 Installing Routines:
               Apr 08, 1999@08:08:16

 Installing Data Dictionaries:
               Apr 08, 1999@08:08:17

 Installing Data:
               Apr 08, 1999@08:08:17
```

```
 Running Post-Install Routine: ^RGHLPOST

 STANDARD TIMEZONE: Enter the appropriate Time Zone for your site
 DST TIMEZONE: Enter the appropriate Daylight Savings Time Zone

 Updating Routine file...

 Updating KIDS files...

 CIRN MESSAGING SUPPORT 1.0 Installed.
               Apr 08, 1999@08:08:18
 No link to PACKAGE file

 NO Install Message sent
 Install Started for MASTER PATIENT INDEX VISTA 1.0 :
               Apr 08, 1999@08:08:18

 Installing Routines:
               Apr 08, 1999@08:08:20

 Running Pre-Install Routine: ^MPIFPRE

 Installing Data Dictionaries:
               Apr 08, 1999@08:08:20

 Installing Data:
               Apr 08, 1999@08:08:20

 Installing PACKAGE COMPONENTS:

 Installing PRINT TEMPLATE

 Installing SORT TEMPLATE

 Installing INPUT TEMPLATE

 Installing MAIL GROUP

 Installing HL LOWER LEVEL PROTOCOL PARAMETER

 Installing HL LOGICAL LINK

 Installing HL7 APPLICATION PARAMETER

 Installing PROTOCOL
  Located in the MPIF (MASTER PATIENT INDEX VISTA) namespace.

 Installing LIST TEMPLATE

 Installing OPTION
               Apr 08, 1999@08:08:26

 Running Post-Install Routine: ^MPIFPST

Adding MPIF CMOR REQUEST mailgroup to file 991.8

 Updating Routine file...

 Updating KIDS files...
```

```
 MASTER PATIENT INDEX VISTA 1.0 Installed.
               Apr 08, 1999@08:08:27..

 Install Message sent #54762

 Install Started for DG*5.3*231 :
               Apr 08, 1999@08:08:27

 Installing Routines:
               Apr 08, 1999@08:08:27
Installing Data Dictionaries: ...
               Apr 08, 1999@08:08:33
Running Post-Install Routine: ^DG53231P

 ****************************

 * Compiling Print Templates *

 ****************************


Compiling DVBHINQ PAT-HINQ COMP Print Template of File 2..
'DVBHCG' ROUTINE FILED.
'DVBHCG1' ROUTINE FILED.............................................


Compiling IB BILLING CLOCK HEADER Print Template of File 351.........
'IBXBCR2' ROUTINE FILED....


Compiling GMRD RELEASED/UNVERIFIED PRINT Print Template of File 128.
'GMRDSTR' ROUTINE FILED......


Compiling GMRD VERIFIED/UNSIGNED PRINT Print Template of File 128...........
'GMRDSTV' ROUTINE FILED......


Compiling MCRHBACK Print Template of File 701.............................
'MCARORB' ROUTINE FILED.......


Compiling TIU RELEASED/UNVERIFIED PRINT Print Template of File 8925...
'TIUPREL' ROUTINE FILED......



 ****************************

 * Compiling Input Templates *

 ****************************
```

```
Compiling DG101 Input Template of File 45.........
'DGPTX1' ROUTINE FILED........
'DGPTX12' ROUTINE FILED.....
'DGPTX11' ROUTINE FILED.....
'DGPTX13' ROUTINE FILED.....
'DGPTX14' ROUTINE FILED...
'DGPTX15' ROUTINE FILED.


Compiling SDM1 Input Template of File 2....
'SDM1T' ROUTINE FILED....
'SDM1T1' ROUTINE FILED...
'SDM1T2' ROUTINE FILED.
Compiling DVBHINQ UPDATE Input Template of File 2....
'DVBHCE' ROUTINE FILED.......
'DVBHCE1' ROUTINE FILED........
'DVBHCE2' ROUTINE FILED....
'DVBHCE3' ROUTINE FILED.......
'DVBHCE4' ROUTINE FILED....
'DVBHCE6' ROUTINE FILED....
'DVBHCE7' ROUTINE FILED....
'DVBHCE8' ROUTINE FILED....
'DVBHCE9' ROUTINE FILED....
'DVBHCE10' ROUTINE FILED...
'DVBHCE11' ROUTINE FILED...
'DVBHCE12' ROUTINE FILED...
'DVBHCE13' ROUTINE FILED....
'DVBHCE14' ROUTINE FILED..
'DVBHCE15' ROUTINE FILED...
'DVBHCE16' ROUTINE FILED....
'DVBHCE18' ROUTINE FILED..
'DVBHCE5' ROUTINE FILED...
'DVBHCE17' ROUTINE FILED.


Compiling DG LOAD EDIT SCREEN 7 Input Template of File 2....
'DGRPXX7' ROUTINE FILED..........
'DGRPXX71' ROUTINE FILED....
'DGRPXX72' ROUTINE FILED.....
'DGRPXX73' ROUTINE FILED.....
'DGRPXX74' ROUTINE FILED....
'DGRPXX76' ROUTINE FILED..
'DGRPXX75' ROUTINE FILED...
'DGRPXX77' ROUTINE FILED.


Compiling DG CONSISTENCY CHECKER Input Template of File 2....
'DGRPXC' ROUTINE FILED...
'DGRPXC1' ROUTINE FILED.


Compiling DGRP COLLATERAL REGISTER Input Template of File 2....
'DGRPXCR' ROUTINE FILED.
```

```
Compiling DVBA C ADD 2507 PAT Input Template of File 2...
'DVBAXA' ROUTINE FILED....
'DVBAXA1' ROUTINE FILED.....
'DVBAXA2' ROUTINE FILED....
'DVBAXA3' ROUTINE FILED....
'DVBAXA4' ROUTINE FILED....
'DVBAXA5' ROUTINE FILED....
'DVBAXA6' ROUTINE FILED...
'DVBAXA7' ROUTINE FILED.


Compiling IB SCREEN1 Input Template of File 399...
'IBXSC1' ROUTINE FILED....
'IBXSC11' ROUTINE FILED....
'IBXSC13' ROUTINE FILED....
'IBXSC14' ROUTINE FILED....
'IBXSC15' ROUTINE FILED....
'IBXSC16' ROUTINE FILED.........
'IBXSC17' ROUTINE FILED..
'IBXSC18' ROUTINE FILED...
'IBXSC12' ROUTINE FILED.


Compiling IB SCREEN2 Input Template of File 399.
'IBXSC2' ROUTINE FILED.....
'IBXSC21' ROUTINE FILED.........
'IBXSC22' ROUTINE FILED.......
'IBXSC23' ROUTINE FILED.


Compiling DGRPT 10-10T REGISTRATION Input Template of File 2....
'DGRPTX' ROUTINE FILED....
'DGRPTX1' ROUTINE FILED....
'DGRPTX2' ROUTINE FILED....
'DGRPTX3' ROUTINE FILED.......
'DGRPTX4' ROUTINE FILED........
'DGRPTX5' ROUTINE FILED.........
'DGRPTX6' ROUTINE FILED.......
'DGRPTX7' ROUTINE FILED.....
'DGRPTX8' ROUTINE FILED....
'DGRPTX9' ROUTINE FILED....
'DGRPTX10' ROUTINE FILED..
'DGRPTX12' ROUTINE FILED..
'DGRPTX11' ROUTINE FILED.

Compiling A1CK VARO/DHCP Input Template of File 2....
'A1CKC' ROUTINE FILED....
'A1CKC1' ROUTINE FILED....
'A1CKC2' ROUTINE FILED...
'A1CKC3' ROUTINE FILED....
'A1CKC4' ROUTINE FILED...
'A1CKC6' ROUTINE FILED..
'A1CKC7' ROUTINE FILED....
'A1CKC5' ROUTINE FILED.
```

```
Updating Routine file...

Updating KIDS files...

DG*5.3*231 Installed.
              Apr 08, 1999@08:08:41.

Install Message sent #54763

Install Completed
```

NOTE: You may use the KIDS Build File Print option to obtain complete listings of the package components (e.g., routines and options) of each individual build included in the meta build and the KIDS Install File Print to see the results of the installation process.

Post-Installation

1. Determine the date of the CMOR Score Calculation and it's completion status
Using the CMOR Calculation Status option (RGCIRN CMOR STATUS) on the CIRN Master of Record Main Menu (RGCIRN CMOR MAIN), check the status of the CMOR calculation run. If more than two weeks has passed since the scores were calculated, it is recommended that it be rerun to calculate scores for any recently added patients.

NOTE: Although the installation can proceed if the CMOR Score Calculation has not finished, the initialization to the MPI phase can **NOT** be started until the job has completed.

If more than two weeks have passed, rerun the Start/Restart CMOR Score Calculation option.
This option should be run as close as possible to the CIRN-PD/MPI implementation (It was originally done as part of the Pre-Implementation phase). This step can take 1.5-4 days depending on your system.

2. Setting Up Your Sites Logical Link

- **If you are not running Caché (Open M system), enable the HL SEVEN service in the UCX set-up (HLSEVEN this is just an example of the UCX service name).**

  Make sure UCX set up for HLSEVEN (this should be your sites service name, HLSEVEN is just an example) service is enabled and the HLSEVEN.COM (site com file name) file contains the IEN (from file 870) for the site's HL7 logical link (VA<3 letter site abbreviation> example: VABAY is for Bay Pines). See Appendix E for more information.

NOTE: The UCX service is what enables sites to send your site messages. If the UCX service is disabled, no messages will come into your site from any other site you share patients with. One way to help keep this UCX service up and running after a system shutdown is to setup the specific UCX service to be enabled upon UCX startup (reboot). This can be done from within UCX by doing the following:

UCX> **SET CONFIG ENABLE SERVICE HLSEVEN**
Where HLSEVEN is the name of the service.

- **Caché (Open M system) Site**

  Caché (Open M system) does NOT use UCX. Instead a Single Threaded Listener or Multi-Threaded Listener (suggested) is used. See Appendix E for further setup instructions on these Listener types.

- **Setup HL Lower Level Protocol Parameter file (#869.2) entry for your site**

  If your site is running UCX or a Multi-Threaded Listener:
  The HL Lower Level Protocol Parameter file (#869.2) for your site's entry (VA<site three letter abbreviation> TCP - for example in Bay Pines VAMC the entry would be VABAY TCP) needs to that the TCP/IP Service Type field (#400.03) set to MULTI LISTENER. [See patch HL*1.6*19 for further information.]

Via VA FileMan

```
>D P^DI
VA FileMan 21.0
Select OPTION: 1  ENTER OR EDIT FILE ENTRIES
INPUT TO WHAT FILE: OPTION// 869.2  HL LOWER LEVEL PROTOCOL PARAMETER
                                (197 entries)
EDIT WHICH FIELD: ALL//.01 Name
THEN EDIT:LLP TYPE
THEN EDIT:TCP/IP ADDRESS
THEN EDIT:TCP/IP PORT
THEN EDIT: TCP/IP SERVICE TYPE

Select HL LOWER LEVEL PROTOCOL PARAMETER NAME: VABAY TCP <<this should be your
site
NAME: VABAY TCP// <RET>
LLP TYPE: TCP// <RET>
TCP/IP ADDRESS: 152.XX.XX.XX// <<your site's IP address>>
TCP/IP PORT: 5000//  << your site's port number associated with the listener
or UCX service>>
TCP/IP SERVICE TYPE: CLIENT (SENDER)// ??

This field determines if the Logical Link is the client (sender) or a listener
(server) of a message.  Choose from:

      CLIENT (SENDER):
      Indicates that this Logical Link connects to a target system,
      with the current system acting as the sender.

      SINGLE LISTENER:
Designates that the current system is a server (listener), using a single M
process to do the listening.

      MULTI LISTENER:
Designates that the current system is a server (listener), creating multiple
background processes.

TCP/IP SERVICE TYPE:  CLIENT (SENDER)//Multi Listener
```

- **Caché sites: Start the Listener.**

```
Select OPTION NAME: HL7 MAIN MENU  HL MAIN MENU        HL7 Main Menu

   1      V1.5 OPTIONS ...
   2      V1.6 OPTIONS ...
   3      Activate/Inactivate Application
   4      Print/Display Menu ...
   5      Purge Message Text File Entries

Select HL7 Main Menu Option: 2  V1.6 OPTIONS

   1      Communications Server ...
   2      Interface Workbench
   3      Message Requeuer

Select V1.6 OPTIONS Option: 1  Communications Server

   1      Edit Communication Server parameters
   2      Manage incoming & outgoing filers ...
   3      Monitor incoming & outgoing filers
```

```
   4      Start LLP
   5      Stop LLP
   6      Systems Link Monitor
   7      Logical Link Queue Management ...
   8      Report
   9      View Transmission Log
          Restart All Links and Filers
          Shut Down All Logical Links

Select Communications Server Option: 4  Start LLP

This option is used to launch the lower level protocol for the
appropriate device.  Please select the node with which you want
to communicate

Select HL LOGICAL LINK NODE: VAxxx       xxx=your station abbreviation
                                                  Saginaw=VASAG
                                                 Bay  Pines=VABAY

     Select one of the following:

          F         FOREGROUND
          B         BACKGROUND
          Q         QUIT

Method for running the receiver: B//  <RET> BACKGROUND
Job was queued as 80869.
```

3. If you are not running a Caché (Open M system), have the system manager review VMS ENQUE QUOTA [Enqlm: 1000] setting.

Have system manager at site review VMS ENQUE QUOTA [Enqlm: 1000] setting; it should not be less than 1000. The change need only be made for the user account implementing CIRN/MPI. This may be hard coded in slot master .COM file to 300, which may cause the MPI load process to have a VMS level error. VMS default setting is 2000. This is hard coded in slot master .COM file to 300, which may cause the MPI load process to have a VMS level error. VMS default setting is 2000.

4. Check on timing of backups and fast ICs.

You may not want to have CIRN-PD/MPI initialization processes competing with nightly backups which might be deferred until CIRN-PD/MPI implementation processes complete.

5. Check disk space for 150 Mb of available space for growth in the ^HL* globals.

If space is at a minimum, you may want to run some HL7 purges prior to starting CIRN-PD/MPI initialization processes.

6. HL7 Purge options

Check that the HL7 Purge options are scheduled to run after the initialization process, since several of the following steps produce high volume messaging. This is a suggested step if you have concerns about disk space where the HL7 globals are stored.

NOTE: This is a suggested step if you have concerns about disk space where the HL7 globals are stored.

7. Address any installation messages that need further action such as, "Missing MPI in Institution file, need to update before proceeding" and any other issues related to the Institution file and HL7.

8. Set Site Parameters

- **Site Parameters Edit for CMOR [MPIF SITE PARAMETER] found on the Patient Admin Coordinator Menu.**

  Your site can select whether requests for a change to a patient's CMOR will be processed automatically or placed in a review file for manual processing. If you select MANUAL, mail messages will be sent to the mail group entered in "New Request Mailgroup" whenever change requests are received.

```
Type of Processing: MANUAL// ??
     Based on this field setting, any CMOR change request received
     from another station can either be manually reviewed or automatically
     approved.
     Choose from:
       0        MANUAL
       1        AUTOMATIC
Type of Processing: MANUAL// <RET>
New Request Mailgroup: MPIF CMOR REQUEST// ??
     If the CMOR Request Change parameter is set to manual, new CMOR change
     requests received will notify the mailgroup entered in this field.  This
     gives a means of prompting someone to review the new request.
New Request Mailgroup: MPIF CMOR REQUEST // <RET>
```

- **Edit Merge Parameter [RG MERGE EDIT PARAMETER] found on the Patient Admin Coordinator Menu**

  Your site can select whether updates to your Patient file that come from other sites will be processed automatically or placed in a review file for manual processing. This parameter will have no effect at a non-CMOR site.

NOTE: Setting this parameter to "NOT AUTO ACCEPT", places the responsibility on MAS to keep up patient demographic changes that are received from non-CMOR sites. These changes can be reviewed using the Patient Data Review option, VAFC Exception Handler. Sites may want to start with NOT AUTO ACCEPT and then change to AUTO ACCEPT once comfortable with the types of changes.

```
AUTO ACCEPT DEMOGRAPHICS: NOT AUTO ACCEPT// ??
     This field is the parameter that a site would set to determine if data
     coming from another site, that is not the owner of the data, could be
     automatically uploaded.
     If this field is not set then the software will assume that all incoming
     data can not be automatically uploaded.
     Choose from:
       1        AUTO ACCEPT
       0        NOT AUTO ACCEPT
AUTO ACCEPT DEMOGRAPHICS: NOT AUTO ACCEPT// <RET>
```

- **HL7 Application Parameters file**

  Check that the correct Station Number is entered in the Facility Name field (#3) of the HL7 Application Parameter file (#771). Local modifications to your Institution file may conflict with CIRN installation set-up.

```
Select HL7 Main Menu Option:
   1      V1.5 OPTIONS ...
   2      V1.6 OPTIONS ...
   3      Activate/Inactivate Application
   4      Print/Display Menu ...
   5      Purge Message Text File Entries
Enter ?? for more options, ??? for brief descriptions, ?OPTION for help text.

Select HL7 Main Menu Option: 2  V1.6 OPTIONS

1      Communications Server ...
   2      Interface Workbench
   3      Message Requeuer

Enter ?? for more options, ??? for brief descriptions, ?OPTION for help text.

Select V1.6 OPTIONS Option: 2  Interface Workbench.

                              Currently Defined
                                  Applications

(#) MPIF CMOR RSLT
 Facility Name: {Your Station # must be here}     Active/Inactive: ACTIVE
  Country Code: USA                          HL7 Field Separator: <DEFAULT>
    Mail Group:                           HL7 Encoding Characters: <DEFAULT>

(#) MPIF CMOR COMP
 Facility Name: : {Your Station # must be here}  Active/Inactive: ACTIVE
  Country Code: USA                          HL7 Field Separator: <DEFAULT>
    Mail Group:                           HL7 Encoding Characters: <DEFAULT>

(#) MPIF-STARTUP
 Facility Name: : {Your Station # must be here}  Active/Inactive: ACTIVE
  Country Code:                              HL7 Field Separator: <DEFAULT>
    Mail Group:                           HL7 Encoding Characters: <DEFAULT>

(#) MPIF A29 SERVER
 Facility Name: : {Your Station # must be here}  Active/Inactive: ACTIVE
  Country Code:                              HL7 Field Separator: <DEFAULT>
    Mail Group:                           HL7 Encoding Characters: <DEFAULT>

(#)  MPIF A30 SERVER
  Facility Name: : {Your Station # must be here} Active/Inactive: ACTIVE
  Country Code:                              HL7 Field Separator: <DEFAULT>
    Mail Group:                           HL7 Encoding Characters: <DEFAULT>

(#) MPIF LOC/MIS
 Facility Name: : {Your Station # must be here}  Active/Inactive: ACTIVE
  Country Code:                              HL7 Field Separator: <DEFAULT>
    Mail Group:                           HL7 Encoding Characters: <DEFAULT>
```

```
(#) RG CIRN
 Facility Name: : {Your Station # must be here}  Active/Inactive: ACTIVE
  Country Code: USA                          HL7 Field Separator: <DEFAULT>
    Mail Group: CIRN HL7 PROBLEMS         L7 Encoding Characters: <DEFAULT>

 (#) VAFC PIMS
 Facility Name: : {Your Station # must be here}  Active/Inactive: ACTIVE
  Country Code: USA                          HL7 Field Separator: <DEFAULT>
    Mail Group: CIRN HL7 PROBLEMS        HL7 Encoding Characters: <DEFAULT>
```

NOTE: This can also be accomplished via VA FileMan.

9. Assign Menus

Menu	Assign to:
CIRN Master Menu [RGMGR]	IRM personnel
CIRN Initialization Menu .... [RGINIT MENU] (installed in CIRN V. 0.5)	IRM personnel
CIRN IRM Menu ... [RG IRM MENU]	IRM personnel
CIRN Patient Admin Coordinator Menu ... [RG ADMIN COORD MENU]	Patient Administration/MAS Coordinator or ADPAC
CIRN Patient Admin User Menu ... [RG ADMIN USER MENU]	Patient Administration/MAS users

10. Logical Links Maintenance

Check HL Logical Links for correct institutions and lower level parameters using VA FileMan.
Using VA FileMan, check to be sure that all the Institution (#.02) and LLP Parameters (#2) fields for the VA* and MPIVA links in the HL Logical Link (#870) file are populated with the correct information.

```
Select OPTION: PRINT FILE ENTRIES

OUTPUT FROM WHAT FILE: CIRN SITE PARAMETER// 870  HL LOGICAL LINK
                                        (20 entries)
SORT BY: NODE// <RET>
START WITH NODE: FIRST// VAA
GO TO NODE: LAST// VAZ
  WITHIN NODE, SORT BY: <RET>
FIRST PRINT FIELD: .01  NODE
THEN PRINT FIELD: LLP PARAMETERS
THEN PRINT FIELD: INSTITUTION
THEN PRINT FIELD: <RET>

  ************************
Heading (S/C): HL LOGICAL LINK LIST  Replace <RET>
START AT PAGE: 1// <RET>
DEVICE: <RET>
HL LOGICAL LINK LIST                          SEP 23,1998  14:39    PAGE 1
NODE        LLP PARAMETERS                  INSTITUTION
------------------------------------------------------------------------
VABAC       VABAC TCP                       BATTLE CREEK, MI
VABAY       VABAY TCP                       BAY PINES, FL
VAFC-SEND   VAFC-SEND                       No institution link needed here
VAFH-SEND   VAFH-SEND                       No institution link needed here
VAGAI       VAGAI TCP                       GAINESVILLE, FL
```

```
VAIND       VAIND TCP                          INDIANAPOLIS, IN
VAMIA       VAMIA TCP                          MIAMI, FL
VANIN       VANIN TCP                          MARION, IN
VATAM       VATAM TCP                          TAMPA, FL
VAWPB       VAWPB TCP                          WEST PALM BEACH, FL
```

This is not a complete list of Logical Links and Institutions. For a complete list and instructions for correcting any entries that are missing needed Institutions., see Appendix H.

NOTE: You will also need to check the Logical Link for the MPIVA (this is the MPI logical link) to be sure that the Institution is MPI. This can be accomplished via a VA FileMan Inquiry into the HL Logical Link file (#870) and selecting to view the MPIVA logical link..

MPIVA DIR should NOT have an entry for the Institution (#.02) field. MPIVA DIR is the logical link for the real-time connections to the MPI.

11. Add members to new mail groups

Mailgroup	Suggested Members
RG CIRN DEMOGRAPHIC ISSUES	Personnel that deal with patient data issues.
RG CIRN HL7 PROBLEMS	Person who will monitor CIRN HL7 problems.
MPIF EXCEPTIONS	IRM person(s) or technical staff who will be monitoring and responding to technical exception message related to the Initialization process and. daily operations.
MPIF CMOR REQUEST	Personnel that will process CMOR Change Requests.

NOTE: The RG CIRN DEMOGRAPHIC ISSUES mail group will potentially have a large number of messages sent to it during the Initialization process. This will only occur in large numbers primarily during the initialization process, but other messages can be generated during daily operations. The MPIF EXCEPTIONS mail group will get technical issue messages. It is suggested that the persons in this mail group not be in the RG CIRN DEMOGRAPHICS ISSUES mail group to avoid having these technical messages "lost" in the patient data messages.

12. Start MPI link

Using the START LLP option, start the MPIVA logical link.

```
>D ^XUP

Select OPTION NAME: HL7 MAIN MENU

Select HL7 Main Menu Option: 2  V1.6 OPTIONS

Select V1.6 OPTIONS Option: 1  Communications Server

Select Communications Server Option: STARt LLP
```

```
This option is used to launch the lower level protocol for the
appropriate device.  Please select the node with which you want
to communicate

Select HL LOGICAL LINK NODE: MPIVA

Select one of the following:

          F         FOREGROUND
          B         BACKGROUND
          Q         QUIT

Method for running the receiver: B// BACKGROUND
Job was queued as 7037030.
```

13. Turn on HL7 Send 2.3 messages in the CIRN Site Parameter file.

Stop/Send/Suspend CIRN Messages [RG CIRN PROCESS CONTROL]

The Stop/Send/Suspend CIRN Message Processing option is provided as a standalone option. It is **NOT** to be attached to any menu. This option allows IRM to set the message activity state (Send/Suspend/Stop). This option is used to edit the Stop CIRN Messaging field (#16) in the CIRN Site Parameter file (#991.8), to stop/send/suspend CIRN messages.

You must be in SEND mode to begin the MPI Initialization phase.

STOP - should be used only to totally shutdown HL7 V. 2.3 and CIRN messages. It should only be used under the direction of Technical Services.

SUSPEND - should be used in an emergency situation to suspend HL7 V. 2.3 and CIRN messages if the volume of messages is affecting system performance. Technical Services should also be called in this situation.

SEND - normal operating mode.

```
D ^XUP
Setting up programmer environment
Terminal Type set to: C-VT320
Select OPTION NAME: RG CIRN PROCESS CONTROL          STOP/SEND/SUSPEND CIRN
messages
STOP CIRN MESSAGING: STOP MESSAGES// SEND
     In sync with MAS parameter.
```

NOTE: If not in sync with the MAS Parameter, you will need to contact your MAS Coordinator to get the Send PIMS HL7 V2.3 Messages field (in the MAS Parameters file(#43)) set to SEND also. If the two parameters are not in sync, the implementation process can not continue.

14. Start Event Queue

From the CIRN IRM Menu, choose CIRN Event Queue Manager ... [RGEQ MGR]

Start CIRN Event Queue [RGEQ START]
Halt CIRN Event Queue [RGEQ STOP]
Error Processing CIRN Event Queue [RGEQ ERROR]
CIRN Event Queue Class Statistics [RGEQ STATS]

Then select the Start CIRN Event Queue option.

During the Initialization to the MPI, the Event Queue is used to send the Subscription "add me" Messages to the CMOR and to update the list of Subscribers from the CMOR to the other interested facilities. These messages will be held in the ^RGEQ global until sent.

More extensive information on the Event Queue features and use can be found in the *CIRN Patient Demographics (CIRN-PD) Technical Manual* in the Menu Options for IRM section and in section Appendix E – CIRN Event Queue of that manual.

Start CIRN Event Queue [RGEQ START]

```
Select CIRN Event Queue Manager Option: Start CIRN Event Queue
Are you sure you want to start the CIRN processor? NO// YES ... done.
```

15. Using the Patient File Initialization to MPI [MPIFINIT DPT TO MPI] option begin batch processing to MPI

This option can be found via the CIRN Master Menu, CIRN Initialization Menu, then the Patient File Initialization to MPI option. The option may be scheduled to run evenings and weekends. It can also be stopped and restarted.

Each patient processed will be looked up in the Master Patient Index - Austin (MPI) using SSN (unless pseudo or missing SSN), Date of Birth and Name. If not found in the MPI, the MPI will add this patient to the MPI, assign the integration control number (ICN), the initial CMOR, create a treating facility list. This information will be added to the site's Patient file (#2) when the return message from the MPI is processed..

The CMOR will be the first site at which the MPI encounters that patient. If a patient match is found in the MPI, the site will be added as a treating facility and the ICN, CMOR, and Treating Facility List will be added to the site's Patient file. Since the initial CMOR assignment may not be correct, CIRN PD/MPI includes other options for a background comparison of CMOR Activity Scores and a manual way to request changing the CMOR.

```
Select CIRN Initialization Menu Option: Patient File Initialization to MPI
START TIME:  NOW//  <RET> (OCT 23, 1998@19:02)
STOP TIME:  OCT 23, 1998@19:02// T+1@2400  (OCT 24, 1998@24:00)
TASK #: 5048822
VAH,ROU>
```

Stop time is set to T+1 at 2400 to give the job plenty of time to run. It may not take that long.

The option builds and processes batch messages that contain 100 (at most) patient names each. You can monitor the progress using the Systems Link Monitor option in the HL7 V. 1.6 package.

```
HL MAIN MENU        HL7 Main Menu

     1      V1.5 OPTIONS ...
     2      V1.6 OPTIONS ...
     3      Activate/Inactivate Application
     4      Print/Display Menu ...
     5      Purge Message Text File Entries

Select HL7 Main Menu Option: 2  V1.6 OPTIONS

     1      Communications Server ...
     2      Interface Workbench
     3.     Message Requeuer
Select V1.6 OPTIONS Option: 1  Communications Server

     1      Edit Communication Server parameters
     2      Manage incoming & outgoing filers ...
     3      Monitor incoming & outgoing filers
     4      Start LLP
     5      Stop LLP
     6      Systems Link Monitor
     7      Logical Link Queue Management ...
     8      Report
     9      View Transmission Log
            Restart All Links and Filers
            Shut Down All Logical Links

Select Communications Server Option: 6   Systems Link Monitor
```

These messages will first show up on the MPIVA entry in the MESSAGES TO SEND and then the MESSAGES SENT columns. Within approximately five minutes (it may be much longer if other sites are also initializing during this time), batch acknowledgements will begin to show up on the site's node (in the following example, VAWPB) first in the MESSAGES RECEIVED and then the MESSAGES PROCESSED columns.

Example of a System Link Monitor:

```
            SYSTEM LINK MONITORY for BAY PINES (Test System)

           MESSAGES    MESSAGES   MESSAGES    MESSAGES  DEVICE
NODE       RECEIVED    PROCESSED  TO SEND     SENT      ON-LINE     STATE

RA-PHIL     5           5          5           5        Y          Idle
NPTF        0           0          7           7        Y          Idle
VABAY       8           8          0           0                   0 Server
MPIVA       0           0          20          20       Y          Idle
VAWPB       0           0          1           1        Y          Idle

     Number of incoming filers running => 2
     Number of outgoing filers running => 2

     Select a Command:
 (N) NEXT (B) BACKUP (Q) QUIT (A) ALL LINKS (S) SCREENED (?) HELP:
```

If messages do not appear to be going out or if the state of the link is "openfail", see Appendix G - Trouble Shooting.

16. Using TaskMan, schedule the Update Batch Job for HL7 v2.3 [VAFC Batch Update] background job to run

As soon as the Patient File Initialization to MPI has messages returned from the MPI and all seems to be well, schedule the Update Batch Job for HL7 V. 2.3 **[**VAFC BATCH UPDATE] background job via TaskMan to process the Treating Facility Updates and any Patient Update messages waiting in the ADT/HL7 Pivot file (#391.71).

NOTE: Starting this background job during the MPI load can generate a large volume of network traffic.

Background Job	Restart Setting Recommendations	Frequency Recommendations
Update Batch Job for CIRN [VAFC BATCH UPDATE]	Special Queuing field should be set to Startup	Every 15 minutes (this job may already be scheduled to run for NPTF or COTS using patch DG*5.3*91.

The Event Queue and the VAFC Batch Update job will send messages to CMOR sites. These messages will show up on the HL7 Link Monitor as MESSAGES TO SEND column for the corresponding links. These links will need to be started up via the HL7 option, noted in step 17.

17 Starting Up Other Logical Links

As messages begin to pile up on the logical links to other facilities, it will be necessary to start these links up, if not already running. This is done in the same manner as the MPI link was started in step 12.

18. When all CIRN messaging to all links is complete, if necessary, run the HL7 purge option

It may be necessary to use the HL7 option Purge Message Text File Entries [HL PURGE TRANSMISSIONS] to purge the successfully completed HL7 messages. This can be done now if your site is concerned about disk space consumption. This job should be scheduled via TaskMan to run at regular intervals.

Use the HL7 option, Systems Link Monitor [HL MESSAGE MONITOR] to identify whether CIRN messaging is complete.

Job	Messaging is complete if…	If there are still messages…
Initialization : ICN and CMOR assignments	all the VA* links and the MPIVA link are not increasing on the to send or sent columns **and** the ^HLMA("AC","O", <ien of logical link in the HL Logical Link file (#870) for all VA* links as well as the MPIVA link> is empty.	
Subscription Control	^RGEQ("SCN_REQ", entries are all gone and no new entries are being created.	make sure that the Event Queue is running
Treating Facility List	messages in the ADT/HL7 Pivot file cross reference (^VAT(391.71,"AXMIT",5,) are all gone, and no new entries are being created.	make sure the VAFC Batch Update job is scheduled If this job completes and entries still remain, see the trouble shooting guide (Appendix G) for more information.

If the messages received and messages processed columns have stopped increasing, messaging for the initialization to the MPI, subscription control, and treating facility messaging has been completed.

```
Select Communications Server Option: 6  Systems Link Monitor

    SYSTEM LINK MONITOR for ALBANY, NY (Test System)

            MESSAGES  MESSAGES   MESSAGES  MESSAGES  DEVICE
NODE        RECEIVED  PROCESSED  TO SEND   SENT      ON-LINE  STATE

RA-PHIL      5           5           5        5        Y       Idle
NPTF         0           0           7        7        Y       Idle
VABAY        8           8           0        0                0 Server
MPIVA        0           0           20       20       Y       Idle
VAWPB        0           0           1        1        Y       Idle

     Number of incoming filers running => 1
     Number of outgoing filers running => 1

Select a Command:
 (N) NEXT (B) BACKUP (Q) QUIT (A) ALL LINKS (S) SCREENED (?) HELP:
```

```
Select HL7 Main Menu Option:

   1      V1.5 OPTIONS ...
   2      V1.6 OPTIONS ...
   3      Activate/Inactivate Application
   4      Print/Display Menu ...
   5      Purge Message Text File Entries


Select HL7 Main Menu Option: 5  Purge Message Text File Entries
Enter the cutoff date for all messages REGARDLESS OF STATUS:  T-90//  <RET>
```

19. Turn auditing on for Name (#.01), Integration Control Number (#991.01), ICN Checksum (#991.02), CIRN Master of Record (#991.03) fields in the Patient file (#2).

Via VA FileMan

```
VA FileMan 21.0
Select OPTION: OTHER OPTIONS
Select OTHER OPTION: AUDITING
Select AUDIT OPTION: 5  TURN DATA AUDIT ON/OFF
AUDIT FROM WHAT FILE: PATIENT// 2
Select FIELD: .01  << here is where you would enter the field numbers
AUDIT: NO//YES, ALWAYS
```

20. If your site is not the only site initializing against the MPI over the weekend or this evening, coordination with those other sites will be necessary before continuing to step 21.

The CMOR Comparison job will be potentially changing CMORs, so timing of this job is important. All sites initializing at the same time as your site will need to complete all steps to this point. Then each site will need to execute step 21, one at a time with the next site not starting until the previous site has completed the entire CMOR Comparison process.

21. After all other messaging to and from the MPI and to/from the CMOR has completed and coordination with other sites initializing has been arranged, run the Begin CMOR Comparison option [MPIF CMOR COMP BATCH]. This option is located on the CMOR Comparison Menu [MPIF COMP MAIN], a submenu of the CIRN Initialization Menu [RGINIT MENU].

NOTE: The Begin CMOR Comparison option produces a large volume of messaging.

The CIRN Master of Record (CMOR) comparison options are used after your site has completed loading the MPI database at Austin, all other MPI initialization steps have been completed, and scheduling with other sites that may also be initializing has been arranged.

Menu Options for CMOR Comparison

Begin CMOR Comparison [MPIF CMOR COMP BATCH]

This option finds all patients that have an ICN for which your site is a treating facility but is not the CMOR. It sends a batch HL7 message to the CMOR sites requesting that the two sites' CMOR Activity Score be compared. Processing of these requests is done as a background job on the CMOR system. The following rules are used to determine the CMOR for each patient in the message:

As each patient is found on the non-CMOR system, a check is done to see if the score calculation date is older than 90 days, the score is recalculated for that patient and the CMOR Activity Score (#991.06) and Score Calculation Date (991.07) fields in the Patient file (#2) are updated.

- If the score calculation date on the CMOR is older than 90 days, the CMOR's score is recalculated and the CMOR Activity Score (#991.06) and Score Calculation Date (991.07) fields in the Patient file (#2) are updated.
- If the incoming score is greater than the CMOR's score and the difference is greater than 80%, the patient's CMOR is updated to the new site and an A31 Change CMOR message is issued to all subscribers including the MPI.
- If the incoming score equals the CMOR's score or is close according to rules, nothing happens.
- If the incoming score is less than the CMOR's score, nothing happens.

The CMOR Comparison menu is found on the CIRN Initialization menu.
This option is tasked to run in the background. It can be stopped and restarted. If you choose to stop and restart, it will begin processing again with the next patient record from where it was stopped.

```
Select CMOR Comparison Menu Option: BEGIN CMOR Comparison
This process will take a while to complete. Are you sure? NO// YES
Requested Start Time: NOW// <RET> (OCT 27, 1998@18:00:23) Task#, 5143912
queued
```

CMOR Comparison Process Status [MPIF CMOR COMP STATUS]

Use this option to view the progress of the CMOR Comparison background job. It displays the current patient being processed including the task number and the run status.

```
Select CMOR Comparison Menu Option: CMOR Comparison Process Status
The CMOR Comparison process has been tasked with task # 4911797. The
process is currently running and the last patient
was VETERAN,JOHN Q ssn # 111111111 CMOR= GAINESVILLE
```

Stop/Restart CMOR Comparison Process [MPIF CMOR COMP STOP/RESTART]

This option can be used to stop or restart the CMOR Comparison background job. If the job was stopped before completion and then restarted, the job will start up where it left off.

22. Start background jobs

Background Job	**Restart Setting Recommendations**	**Frequency Recommendations**
Event Queue Autostart [RGEQ AUTOSTART]	Special Queuing field should be set to Persistent and Startup (SP)	
Local/Missing ICN Resolution Background Job [MPIF LOC/MIS ICN RES]	Special Queuing field should be set to Startup	Special Queuing field should be set to Startup

NOTE: As new sites schedule installation and implementation of CIRN PD and MPI the sites that have already loaded will be contacted ahead of time to start that site(s) logical link. You will need to monitor the VA* links to be sure that those with messages to send remain up and running.

Glossary

Active Patients	Patients who have been seen at a site within the past three years.
ADT (Admission Discharge and Transfer)	A part of the Patient Information Management System (PIMS).
ADT/HL7 Pivot File	Changes to any of the fields of patient information will be recorded and an entry created in the ADT/HL7 Pivot File. When an update to a patient's treating facility occurs, this event is added to the ADT/HL7 Pivot file and marked for transmission. A background job will collect these updates and broadcast the appropriate HL7 message (A08 Patient Update or MFN Treating Facility Updates) . This is a ADT HL7 message designed for CIRN/MPI.
Batch Messages	There are instances when it is convenient to transfer a batch of HL7 messages. Common examples related to CIRN/MPI are queries sent to the MPI for an ICN during the initialization process, the resolution of Local or Missing ICNs, and CMOR Batch Comparisons. Such a batch could be sent online using a common file transfer protocol.
Bulletins	CIRN generates messages and bulletins to alert the user to problems that occur in generating or processing HL7 messages. CIRN's Exception Handling menu contains options to manage the problems.
Clinical Integration Resources Network (CIRN)	CIRN identifies the sites where a patient is receiving care, creates and maintains a clinical repository of data reflecting all VHA care for that patient, and shares that data between those sites.
CIRN Master of Record (CMOR	The CMOR site is the designated "owner" of the patient's descriptive and clinical data. A patient has only one CMOR at a time, but the CMOR can change. Initially, the MPI assigns the CIRN Master of Record based upon the first site at which the MPI encounters the patient. The designation of a site as the CMOR for a patient does not provide "workload credit" or any other distinction. This is a new field in the Patient file.
Clinical Object Dictionary (COD)	The Clinical Object Dictionary defines clinical entities and their relationships and properties to provide a uniform and standard means for identifying and retrieving data stored within the Clinical Object Repository (COR),

Clinical Object Repository (COR)	The repository contains core clinical information for patients that bridges multiple clinical data sources and institutions . Stored data elements include a wide variety of clinical observations (lab results, procedures, prescription data, narrative reports, etc.) with numerous attributes such as site of origin, ordering provider, and visit linkages. One of the functions of CIRN is to create and maintain the clinical repository and to move clinical data between subscribing sites. A patient's CMOR site is considered to have the "gold" version of a patient's clinical repository.
Clinical Patient Record System (CPRS)	CIRN software is built upon the foundation created by the CPRS work. CPRS provides a computer-based patient record and organizes and presents all relevant data on a patient in a way that directly supports clinical decision-making. CPRS integrates the extensive set of clinical and administrative applications available within **V*IST*A**.
Clinical Subscriber	Clinical subscribers receive updates to both the patient's descriptive data and clinical repository information. Clinical subscribers do not have to be treating facilities. However, for treating facilities, a subscription with an infinite expiration date is implied. They may not deactivate from descriptive subscriptions. A treating facility, upon registration of a patient known elsewhere, automatically becomes a subscriber.
CMOR Activity Score	The CMOR Activity Score reflects a patient's activity at a site over the past 3 years. It is used during initialization with the MPI to identify active patients. It is later used in determining the logical CMOR for a patient. The CMOR activity score is stored in the Patient file along with the date last calculated. It can be recalculated as needed. Following the initialization with the MPI, a site runs an option that identifies the shared patients for which it is **not** the CMOR. An option is provided to send messages to the CMOR sites in order to compare the CMOR scores and reassign the CMOR if that action appears to be appropriate. Changing the CMOR requires agreement between the two sites involved.
Date of Death	A patient may be entered as deceased at a treating facility. If a shared patient is flagged as deceased, an RG CIRN DEMOGRAPHIC ISSUES bulletin is sent to each subscribing site telling where, when, and by whom the deceased date was entered. Each site can then review whether the patient should be marked as deceased at their site.
Demographic Data	Identifying descriptive data about a patient, such as: name, sex, date of birth, marital status, religious preference, SSN, address, etc.

Descriptive Subscriber	Descriptive subscribers receive changes to patient demographic information including CMOR changes and updates to the subscription and treating facilities lists. Descriptive subscribers can request a change in status if they wish to also receive clinical repository data.
Direct Connect	The Direct Connect is a real-time TCP/IP connection to the Master Patient Index to allow for an immediate request for an ICN. It is activated when using and the following PIMS options: Register A Patient, Load/Edit Patient Data, and 10-10T Registration processes in PIMS and when using the following MPI options: MPI Single Patient Initialization Display Only Query option .
Eligibility Codes	Codes representing the basis of a patient's eligibility for care.
Health Level 7 (HL7)	A national level standard for data exchange in all healthcare environments regardless of individual computer application systems.
Health Level 7 (HL7) **V*IST*A**	A messaging system developed as a **V*IST*A** software package that follows the HL7 Standard for data exchange.
HINQ (Hospital Inquiry)	The Hospital Inquiry (HINQ) module provides the capability to request and obtain veteran eligibility data via the VA national telecommunications network. Individual or group requests are sent from a local computer to a remote Veterans Benefits Administration (VBA) computer where veteran information is stored. The VBA network that supports HINQ is composed of four computer systems located in regional VA payment centers.
HL7 MFN Messages	An HL7 Update Treating Facility message type (Master File Notification [MFN]). When an update to a patient's treating facility occurs, this event is added to the ADT/HL7 Pivot file and marked for transmission. A background job will collect these updates and broadcast the HL7 MFN messages. This is an ADT HL7 message designed for CIRN and MPI.

MPI Initialization	The process of initializing a site's Patient file with the Master Patient Index (MPI). Initialization synchronizes Patient file information (for active patients) with the MPI and identifies facilities where the patient has been treated. This process transfers the Integration Control Number (ICN), CIRN Master of Record (CMOR), and Treating Facility list for each patient to the patient's record in the **V*IST*A** Patient file at all sites where the patient has been treated. It is also possible to initialize an individual patient to the MPI. This is done through menu options. The initial synchronization of patient file information (for active, shared patients) with the Master Patient Index and with the patient's treating facilities is an important step in the implementation of the CIRN software system.
Integration Control Number (ICN)	The Integration Control Number (ICN) is a unique identifier assigned to patients when they are added to the Master Patient Index. ICNs link patients to their records across VA systems. The ICN follows the American Society for Testing Materials (ASTM) E1714-95 standard for a universal health identifier.
Master Patient Index (MPI-Austin)	The MPI is the master index of all VHA patients. The MPI assigns and maintains unique national patient identifiers, Integration Control Numbers or ICNs, which link patients to their records across VHA systems. The MPI also assigns the initial CMOR (first site to identify the patient to the MPI). It contains patient's identifying descriptive information (e.g., name, SSN, date of birth, mother's maiden name, place of birth state, and place of birth city).
Master Patient Index (MPI - **V*IST*A**)	This software resides in **V*IST*A** and supports the Austin side of the MPI, as well as the CMOR (CIRN Master Of Record) change requests. MPI (**V*IST*A**) enables sites to query the MPI (Austin) for the: 1. assignment of ICN (i.e., Integration Control Number) and CMOR 2. inactivation of an ICN for a patient, and 3. known patient data on the MPI (Austin) Any updates to patient data are then sent to the MPI (Austin) and to sites where a patient has been seen. MPI (**V*IST*A**) also manages incoming and outgoing Change CMOR requests.
Message Segments	Each HL7 message is composed of segments. Segments contain logical groupings of data. Segments may be optional or repeatable. A [ ] indicates the segment is optional, the { } indicates the segment is repeatable. For each message category, there will be a list of HL7 standard segments and/or "Z" segments used for the message.

Non-CMOR Sites	Sites that are not the CMOR for a given patient but which nevertheless have an interest in the patient.
Patient Demographics	Identifying descriptive information about a patient. With CIRN and MPI, key demographic information for a patient is the same at each of the treating facilities where that patient is seen. Also, a module of the CIRN package.
Patient Merge (also see Kernel Toolkit, Duplicate Record Merge: Patient Merge)	Patient Merge is a **V*IST*A** application that provides an automated method to eliminate duplicate patient records within the **V*IST*A** database [i.e., the **V*IST*A** Patient file (#2)]. It consists of three steps: 1. search for potential duplicate record pairs, 2. review, verification, and approval of those pairs, and 3. the merge process
PD (Patient Demographics)	Identifying descriptive information about a patient. With CIRN and MPI, key demographic information for a patient is the same at each of the treating facilities where that patient is seen. Also, a module of the CIRN package.
Pseudo-SSNs	False Social Security Numbers that are calculated internally to **V*IST*A** and can not be mistaken for valid SSNs because they end with a "P". Updating active patients' missing or pseudo-SSNs is necessary in order to interface properly with the MPI.
REGENSTRIEF Medical Record System	Model for CIRN, from the Regenstrief Institute of Indianapolis, Indiana; also referred to as the Indianapolis model.
Registration Process	During a registration, if a patient does not have an ICN, the patient is checked against the entries in the MPI to determine if the patient already is established or needs to be added . The MPI may return a list of patients who are possible matches. If the patient is truly new and there are no potential matches in the MPI, the MPI will assign an ICN and assigns the requesting site as the CMOR. If the patient is already known at the MPI, the ICN and CMOR is returned and a HL7 message is sent to the CMOR to add this new facility to the list of Treating Facilities for this patient. Registration for patients who already have an ICN at the Facility. At the CMOR site, A04 Registration HL7 messages are sent to the MPI and all sites where the patient is known. These messages update the date of last activity and any changes to the descriptive data. At a non-CMOR site, an A04 Registration HL7 message is sent to the CIRN Master of Record.

Score Calculation Date	Date when the CMOR Activity Score was last calculated. This is a new field in the Patient file (#2).
Segment Table Definitions	For each segment, the data elements are described in table format. The table includes the sequence number (SEQ), maximum length (LEN), data type (DT), required or optional (R/O), repeatable (RP/#), the table number (TBL #), the element name, and the **V***IST***A** description.
Sensitive Patient	A patient whose record contains certain information, such as political figures, employees, patients with a particular eligibility or medical condition may be deemed sensitive by a facility. If a shared patient is flagged as sensitive at one of the treating sites, a bulletin is sent to the RG CIRN DEMOGRAPHIC ISSUES mail group at each subscribing site telling where, when, and by whom the flag was set. Each site can then review whether the circumstances meet the local criteria for sensitivity flagging.
Shared Patient	A patient that is registered for care at more than one facility. The CMOR keeps the Treating Facility List and Subscription List updated every time a new facility where the patient has been seen identifies itself to the MPI. The CMOR then broadcasts the updated lists to all the other facilities that share this patient.
Subscriber	A subscriber is an entity that receives updates to a patient's descriptive and/or clinical data from other sites. Clinical subscribers receive updates to both the patient's descriptive data and clinical repository information. Clinical subscribers do not have to be treating facilities. However, for treating facilities, a subscription with an infinite expiration date is implied. They may not deactivate from descriptive subscriptions. A treating facility, upon registration of a patient known elsewhere, automatically becomes a subscriber. Descriptive subscribers receive changes to patient demographic information including CMOR changes and updates to the subscription and treating facilities lists. Descriptive subscribers can request a change in status if they wish to also receive clinical repository data.
Subscription	The process used to identify the sites that will receive clinical and/or descriptive information for a patient.
Synchronized Patient Data	Key descriptive fields in the patient file that are updated in all the descriptive subscriber's patient files whenever the fields a re edited by a subscriber.

Treating Facility	Any facility where a patient has applied for care, or has been added to the local Patient file (regardless of VISN) is placed on the Treating Facility List. This list is part of the synchronized patient descriptive data. Treating Facilities receive both descriptive and clinical updates for that patient but may elect to receive descriptive updates only. They may not deactivate their subscription to descriptive (i.e., patient demographic) data. Changes to patient descriptive data that are identified at a treating facility trigger a message to the CIRN Master of Record. After review and acceptance, the CMOR broadcasts an update message to all treating facilities, subscribers, and the MPI. Clinical updates to the patient's record are made directly from the treating facility and broadcast to all other treating facilities and clinical subscribers for the patient.
Treating Facility list	A table of institutions at which the patient has received care. This list is used to create subscriptions for the delivery of patient clinical and demographic information between sites.
Trigger Events	An activity in **V*IST*A** that creates HL7 messages.
Z Segments	An HL7 custom segment format. Z segments are used when the standard HL7 v2.3 does not meet the needs to share data. Each Z segment must be approved by the HL7 Administrator within Technical Services.

Appendix A: CIRN Business Rules

Start-up (only)
A patient's CMOR will be the first treating site that identifies the patient to the MPI.

Duplicate ICNs
More than one patient in a single Patient file (#2) can not have the same ICN. For example, let's say that the MPI returned an ICN to your local Patient file for a patient who previously did not have one assigned. If that same ICN is currently assigned to a different patient in your local Patient file, an exception message is sent to the MPI EXCEPTIONS mail group, and the ICN, CMOR, and treating facilities list is not updated for this new patient.

CMOR changes
Receiving site must be a treating facility (patient must be registered there).

Update Messages
Descriptive data update messages are broadcast by the CMOR. Clinical data updates are broadcast directly to the subscribers by the treating facility.

Institution File
A site can be in only one VISN at a time. A record in the Institution file can not have two parents of the same type.

A record in the Institution file cannot be a child and have children of its own.

MPI (Austin)
The MPI assigns national ICN and initial CMOR (first site to identify the patient to the MPI). The MPI accepts update messages only from the CMOR. The MPI maintains a copy of the treating facilities list but not the subscription list. Subscriber messages are not sent to the MPI.

Treating Facilities
Broadcast messages to add a treating facility for a patient will come only from the CIRN Master of Record (CMOR). The site requesting to be added sends a message to the CMOR, the CMOR broadcasts an A08 update message.

Subscriptions
All Subscribers to clinical data will be subscribers to descriptive data. A clinical subscriber can change to a descriptive category. Subscribers that are not designated as treating facilities may deactivate their subscription using an expiration date. Treating Facilities will be clinical subscribers unless they request descriptive only. Treating facilities may not deactivate from descriptive subscriptions.

Sites can only subscribe/unsubscribe themselves except in cases of automatic subscription (treating facility).

Descriptive subscription lists will be synchronized.

Patient Sensitivity
If a shared patient is flagged as sensitive at one of the treating sites, a bulletin is sent to the RG CIRN DEMOGRAPHIC ISSUES mail group at each subscribing site telling where, when, and by whom the flag was set. Each site can then review whether the circumstances meet the local criteria for sensitivity flagging. If the site chooses to change the patient to a sensitive status, the option to do so would be used and then a bulletin would be sent to the mail group established in the PIMS package for notifying users of a sensitive patient change.

Date of Death
A patient may be entered as deceased at a treating facility. If a shared patient is flagged as deceased, a bulletin, RG CIRN DEMOGRAPHI ISSUES, is sent to each subscribing site telling where, when, and by whom the deceased date was entered. Each site can then review whether the patient should be marked as deceased at their site.

Appendix B - Special Instructions for Test Account Installations

A separate build, CIRN TEST ACCT LOGICAL LINKS 1.0, is provided for test accounts in place of the HL7 Logical Link patch (HL*1.6*39)**. Use the following instructions to populate HL7 links in your test account.**

The CIRN test account build configures Logical links and Lower Level Protocol (LLPs) parameters for VA sites in the CIRN wide area network. These links make use of the MLLP/TCP protocol provided in patch HL*1.6*19.

****CAUTION****
DO NOT INSTALL THIS BUILD IN YOUR PRODUCTION ENVIRONMENT. The logical link definitions are for test account systems only.

Since the Logical Link file (#870) has pointers to both Domains and Institutions, KIDS may report errors during the installation that pointers could not be resolved. Please review and correct these errors as well.

1. **Stop all logical links using the HL7 option:**
   Stop LLP

2. **Install the Logical Link Build for test accounts.**

3. **At the completion of the Logical Link Build for test accounts:**

   Verify that each of the logical links exported were correctly set up. You can check this yourself by visually inspecting each TCP-type link. Ensure that each link points to the correct Institution, Domain, and Lower Level Protocol parameter. In the HL Lower Level Protocol Parameter file, verify that the entry corresponding to your site is the correct IP address for your test account. If it is not, please use the National Online Information System (NOIS) for help.

****IMPORTANT****

Note that all HL Lower Level Protocol Parameter entries exported were
installed with Field #400.03 set to "CLIENT." Locate the entry corresponding to your institution and edit this field as follows:

From the Interface Workbench you will see an entry similar to this:

```
(1) KERNEL
 LLP Parameter: TEST-KRN-A2                    TCP/IP Address: 152.132.1.57
      LLP Type: TCP  (T)                          TCP/IP Port: 5025
    Queue Size: <DEFAULT>                  TCP/IP Service Type: <NONE>
   Institution: 16000                             Persistent: <DEFAULT>
        Domain: <NONE>                          Startup Node: <NONE>
     Autostart: <DEFAULT>
```

When you select the logical link to edit you will see the following:

```
Select Logical Link (1-38): 1

Logical Link information
------------------------
Queue Size: <RET>
LLP Parameter: TEST-KRN-A2// <RET>
Institution: 16000// <RET>
Domain: <RET>
Auto Start: <RET>

LLP Parameters
--------------
LLP Type: TCP// <RET>
TCP/IP Address: 152.132.1.57// <RET>
TCP/IP Port: 5009// <RET>
TCP/IP Service Type: ?
     Choose from:
       C        CLIENT (SENDER)
       S        SINGLE LISTENER
       M        MULTI LISTENER
TCP/IP Service Type: <RET>
```

When you query the field you will see the following description:

```
TCP/IP Service Type: ??
     This field determines if the Logical Link is the client (sender) or
     a listener (server) of a message.  Choose from:
      CLIENT (SENDER):
       Indicates that this Logical Link connects to a target system, with
       the current system acting as the sender.

      SINGLE LISTENER:
       Designates that the current system is a server (listener), using a
       single M process to do the listening.

      MULTI LISTENER:
       Designates that the current system is a server (listener), creating
       multiple background processes.
```

The type "SERVER" is a single threaded listener. It runs exclusively in M as a Taskman job and services one connection request at a time. While only single-threaded, this type is generally adequate for high volumes of messages. This job must always start on the same node or clients will not be able to connect. Do not choose this if Taskman is running on more than one node.

If you are running Taskman on more than one VMS node, you must choose MULTI LISTENER. OpenVMS and NT Caché support an external, multi-threaded listener. The multi-threaded listener spawns off a separate handler to handle each client connection request. This type of listener is external to the HL7 package. Under VMS, it is the UCX service and under NT Caché it will be a user-defined service. The use of UCX will ensure that a client's connection is always granted on the correct node and multiple client connections can run concurrently.

See Appendix H of this manual for a list of Logical Links, Institution Names, and Station Numbers.

4. **Invoke the HL7 option, Restart All Links and Filers, to bring the HL7 package back on line.** Remember this will only restart the links that are "autostart" enabled. The links in Patch HL*1.6*19 are exported with all links set to "AUTOSTART DISABLED".

5. **Install the CIRN PD/MPI 1.0 build.**

```
Select Kernel Installation & Distribution System Option:  Installation
Select Installation Option: Load a Distribution
Enter a Host File: CIRN1_0.KID
KIDS Distribution saved on Feb 24, 1999@14:41:19
Comment: TESTING IN TST,CRN

This Distribution contains Transport Globals for the following Package(s):
     CIRN PD/MPI 1.0
     CIRN PATIENT DEMOGRAPHICS 1.0
     CIRN MESSAGING COMPONENTS 1.0
     CIRN MESSAGING SUPPORT 1.0
     MASTER PATIENT INDEX VISTA 1.0

Want to Continue with Load? YES// <RET>
Loading Distribution...

   CIRN PD/MPI 1.0
Want to RUN the Environment Check Routine? YES// <RET>
   CIRN PATIENT DEMOGRAPHICS 1.0
   CIRN MESSAGING COMPONENTS 1.0
   CIRN MESSAGING SUPPORT 1.0
   MASTER PATIENT INDEX VISTA 1.0
Use INSTALL NAME: CIRN PD/MPI 1.0 to install this Distribution.
```

Installation

```
Select Installation Option: 6  Install Package(s)
Select INSTALL NAME: CIRN PD/MPI 1.0

This Distribution was loaded on Feb 26, 1999@08:30:10 with header of
TESTING IN TST,CRN  ;Created on Feb 24, 1999@14:41:19
It consisted of the following Install(s):
CIRN PD/MPI 1.0
CIRN PATIENT DEMOGRAPHICS 1.0
CIRN MESSAGING COMPONENTS 1.0
CIRN MESSAGING SUPPORT 1.0
MASTER PATIENT INDEX VISTA 1.0

 CIRN PD/MPI 1.0

Install Questions for CIRN PD/MPI 1.0


 CIRN PATIENT DEMOGRAPHICS 1.0
Will first run the Environment Check Routine, RGPDENV
```

```
Environment check is ok.

Install Questions for CIRN PATIENT DEMOGRAPHICS 1.0

Incoming Mail Groups:

Enter the Coordinator for Mail Group 'RG CIRN DEMOGRAPHIC ISSUES':
Enter the name of the Patient Admin Coordinator/MAS ADPAC

Enter the Coordinator for Mail Group 'RG CIRN HL7 PROBLEMS':
Enter the name of the person who will monitor CIRN HL7 problems

   CIRN MESSAGING COMPONENTS 1.0

Install Questions for CIRN MESSAGING COMPONENTS 1.0

Incoming Mail Groups:

   CIRN MESSAGING SUPPORT 1.0

Install Questions for CIRN MESSAGING SUPPORT 1.0

Incoming Files:

   990.8     CIRN REPOSITORY SITE PARAMETER  (including data)

   991.1     CIRN HL7 EXCEPTION LOG

   991.11    CIRN HL7 EXCEPTION TYPE  (including data)

   995       CIRN EVENT ASSOCIATION  (including data)

   995.1     CIRN EVENT EXCEPTION

   995.2     CIRN EVENT STATISTICS

   MASTER PATIENT INDEX VISTA 1.0

Install Questions for MASTER PATIENT INDEX VISTA 1.0

Incoming Files:

   984.1     MASTER PATIENT INDEX (LOCAL NUMBERS)

   984.5     MPI CHECKDIGIT  (including data)

   984.8     MPI ICN BUILD MANAGEMENT  (including data)

   984.9     MPIF CMOR REQUEST

   995       CIRN EVENT ASSOCIATION  (including data)
```

```
Incoming Mail Groups:

Enter the Coordinator for Mail Group 'MPIF HL7 GROUP':
Enter the name of the person who will monitor the MPI Server

Enter the Coordinator for Mail Group 'MPIF CMOR REQUEST':
Enter the name of the Patient Admin Coordinator/MAS ADPAC
Enter the Coordinator for Mail Group 'MPIF EXCEPTIONS':
Enter the name of the person who will monitor the MPI Exceptions

Want KIDS to Rebuild Menu Trees Upon Completion of Install? YES//  YES

Want to DISABLE Scheduled Options, Menu Options, and Protocols? YES//  NO

Enter the Device you want to print the Install messages.
You can queue the install by enter a 'Q' at the device prompt.
Enter a '^' to abort the install.

DEVICE: HOME//  <RET> Telnet Home Device


 Install Started for CIRN PD/MPI 1.0 :
               Feb 26, 1999@08:40:10

 Installing Routines:
               Feb 26, 1999@08:40:10

 Updating Routine file...

 Updating KIDS files...

 CIRN PD/MPI 1.0 Installed.
               Feb 26, 1999@08:40:10

 Install Started for CIRN PATIENT DEMOGRAPHICS 1.0 :
               Feb 26, 1999@08:40:10

 Installing Routines:
               Feb 26, 1999@08:40:11

 Installing PACKAGE COMPONENTS:

 Installing BULLETIN

 Installing INPUT TEMPLATE

 Installing MAIL GROUP

 Installing HL LOWER LEVEL PROTOCOL PARAMETER

 Installing HL LOGICAL LINK

 Installing HL7 APPLICATION PARAMETER

 Installing PROTOCOL

 Installing OPTION
               Feb 26, 1999@08:40:19
```

```
Running Post-Install Routine: PD^RGPDPST

Updating Routine file...

Updating KIDS files...

CIRN PATIENT DEMOGRAPHICS 1.0 Installed.
              Feb 26, 1999@08:40:20..

Install Message sent #54578

Install Started for CIRN MESSAGING COMPONENTS 1.0 :
              Feb 26, 1999@08:40:20

Installing Routines:
              Feb 26, 1999@08:40:20

Installing PACKAGE COMPONENTS:

Installing PRINT TEMPLATE

Installing SORT TEMPLATE

Installing INPUT TEMPLATE

Installing MAIL GROUP

Installing HL7 APPLICATION PARAMETER

Installing PROTOCOL

Installing OPTION
              Feb 26, 1999@08:40:24

Running Post-Install Routine: MC^RGPDPST

Updating Routine file...

Updating KIDS files...

CIRN MESSAGING COMPONENTS 1.0 Installed.
              Feb 26, 1999@08:40:24

Install Started for CIRN MESSAGING SUPPORT 1.0 :
              Feb 26, 1999@08:40:24

Installing Routines:
              Feb 26, 1999@08:40:24

Installing Data Dictionaries:
              Feb 26, 1999@08:40:26
Installing Data:
              Feb 26, 1999@08:40:28

Running Post-Install Routine: ^RGHLPOST

STANDARD TIMEZONE: Enter the appropriate Time Zone for your site
DST TIMEZONE: Enter the appropriate Daylight Savings Time Zone
```

```
 Updating Routine file...
 Updating KIDS files...

 CIRN MESSAGING SUPPORT 1.0 Installed.
               Feb 26, 1999@08:40:28

 Install Started for MASTER PATIENT INDEX VISTA 1.0 :
               Feb 26, 1999@08:40:28

 Installing Routines:
               Feb 26, 1999@08:40:30

 Running Pre-Install Routine: ^MPIFPRE

 Installing Data Dictionaries:
               Feb 26, 1999@08:40:32

 Installing Data:
               Feb 26, 1999@08:40:33

 Installing PACKAGE COMPONENTS:

 Installing PRINT TEMPLATE

 Installing SORT TEMPLATE

 Installing INPUT TEMPLATE

 Installing MAIL GROUP

 Installing HL LOWER LEVEL PROTOCOL PARAMETER

 Installing HL LOGICAL LINK

 Installing HL7 APPLICATION PARAMETER

 Installing PROTOCOL

 Installing LIST TEMPLATE

 Installing OPTION
               Feb 26, 1999@08:40:41

 Running Post-Install Routine: ^MPIFPST

Adding MPIF CMOR REQUEST mailgroup to file 991.8

 Updating Routine file...

 Updating KIDS files...

 MASTER PATIENT INDEX VISTA 1.0 Installed.
               Feb 26, 1999@08:40:42..


 Install Message sent #54580

 Install Completed
```

```
Installing Data Dictionaries: ...
               Feb 26, 1999@08:40:43..
Running Post-Install Routine: ^DG53231P

 ****************************

 * Compiling Print Templates *

 ****************************


Compiling DVBHINQ PAT-HINQ COMP Print Template of File 2..
'DVBHCG' ROUTINE FILED.
'DVBHCG1' ROUTINE FILED.............................................


Compiling IB BILLING CLOCK HEADER Print Template of File 351.........
'IBXBCR2' ROUTINE FILED....


Compiling GMRD RELEASED/UNVERIFIED PRINT Print Template of File 128.
'GMRDSTR' ROUTINE FILED......


Compiling GMRD VERIFIED/UNSIGNED PRINT Print Template of File 128...........
'GMRDSTV' ROUTINE FILED......


Compiling MCRHBACK Print Template of File 701.............................
'MCARORB' ROUTINE FILED.......


Compiling TIU RELEASED/UNVERIFIED PRINT Print Template of File 8925...
'TIUPREL' ROUTINE FILED......



 ****************************

 * Compiling Input Templates *

 ****************************


Compiling DG101 Input Template of File 45.........
'DGPTX1' ROUTINE FILED........
'DGPTX12' ROUTINE FILED.....
'DGPTX11' ROUTINE FILED.....
'DGPTX13' ROUTINE FILED.....
'DGPTX14' ROUTINE FILED...
'DGPTX15' ROUTINE FILED.


Compiling SDM1 Input Template of File 2....
'SDM1T' ROUTINE FILED....
'SDM1T1' ROUTINE FILED...
'SDM1T2' ROUTINE FILED.
```

```
Compiling DVBHINQ UPDATE Input Template of File 2....
'DVBHCE' ROUTINE FILED.......
'DVBHCE1' ROUTINE FILED........
'DVBHCE2' ROUTINE FILED....
'DVBHCE3' ROUTINE FILED.......
'DVBHCE4' ROUTINE FILED....
'DVBHCE6' ROUTINE FILED....
'DVBHCE7' ROUTINE FILED....
'DVBHCE8' ROUTINE FILED....
'DVBHCE9' ROUTINE FILED....
'DVBHCE10' ROUTINE FILED...
'DVBHCE11' ROUTINE FILED...
'DVBHCE12' ROUTINE FILED...
'DVBHCE13' ROUTINE FILED....
'DVBHCE14' ROUTINE FILED..
'DVBHCE15' ROUTINE FILED...
'DVBHCE16' ROUTINE FILED....
'DVBHCE18' ROUTINE FILED..
'DVBHCE5' ROUTINE FILED...
'DVBHCE17' ROUTINE FILED.


Compiling DG LOAD EDIT SCREEN 7 Input Template of File 2....
'DGRPXX7' ROUTINE FILED.........
'DGRPXX71' ROUTINE FILED....
'DGRPXX72' ROUTINE FILED.....
'DGRPXX73' ROUTINE FILED.....
'DGRPXX74' ROUTINE FILED....
'DGRPXX76' ROUTINE FILED..
'DGRPXX75' ROUTINE FILED...
'DGRPXX77' ROUTINE FILED.


Compiling DG CONSISTENCY CHECKER Input Template of File 2....
'DGRPXC' ROUTINE FILED...
'DGRPXC1' ROUTINE FILED.


Compiling DGRP COLLATERAL REGISTER Input Template of File 2....
'DGRPXCR' ROUTINE FILED.


Compiling DVBA C ADD 2507 PAT Input Template of File 2...
'DVBAXA' ROUTINE FILED....
'DVBAXA1' ROUTINE FILED.....
'DVBAXA2' ROUTINE FILED....
'DVBAXA3' ROUTINE FILED....
'DVBAXA4' ROUTINE FILED....
'DVBAXA5' ROUTINE FILED....
'DVBAXA6' ROUTINE FILED...
'DVBAXA7' ROUTINE FILED.
```

```
Compiling IB SCREEN1 Input Template of File 399...
'IBXSC1' ROUTINE FILED....
'IBXSC11' ROUTINE FILED....
'IBXSC13' ROUTINE FILED....
'IBXSC14' ROUTINE FILED....
'IBXSC15' ROUTINE FILED....
'IBXSC16' ROUTINE FILED.........
'IBXSC17' ROUTINE FILED..
'IBXSC18' ROUTINE FILED...
'IBXSC12' ROUTINE FILED.


Compiling IB SCREEN2 Input Template of File 399.
'IBXSC2' ROUTINE FILED.....
'IBXSC21' ROUTINE FILED.........
'IBXSC22' ROUTINE FILED.......
'IBXSC23' ROUTINE FILED.


Compiling DGRPT 10-10T REGISTRATION Input Template of File 2....
'DGRPTX' ROUTINE FILED....
'DGRPTX1' ROUTINE FILED....
'DGRPTX2' ROUTINE FILED....
'DGRPTX3' ROUTINE FILED.......
'DGRPTX4' ROUTINE FILED........
'DGRPTX5' ROUTINE FILED.........
'DGRPTX6' ROUTINE FILED.......
'DGRPTX7' ROUTINE FILED.....
'DGRPTX8' ROUTINE FILED....
'DGRPTX9' ROUTINE FILED....
'DGRPTX10' ROUTINE FILED..
'DGRPTX12' ROUTINE FILED..
'DGRPTX11' ROUTINE FILED.

Compiling A1CK VARO/DHCP Input Template of File 2....
'A1CKC' ROUTINE FILED....
'A1CKC1' ROUTINE FILED....
'A1CKC2' ROUTINE FILED...
'A1CKC3' ROUTINE FILED....
'A1CKC4' ROUTINE FILED...
'A1CKC6' ROUTINE FILED..
'A1CKC7' ROUTINE FILED....
'A1CKC5' ROUTINE FILED.

 Updating Routine file...

 Updating KIDS files...

 DG*5.3*231 Installed.
              Feb 26, 1999@08:40:44..
 Install Message sent #54581

Install Completed
```

You may use the KIDS Build File Print option to obtain complete listings of the package components (e.g., routines and options) of each individual build included in the meta build and the KIDS Install File Print to see the results of the installation process.

Post Installation for Test Accounts

NOTE: In the test account, you will not be loading your patient file against the MPI. A test MPI will be available for real-time queries for ICN assignments via Register a Patient, 10-10T Registration and Load/Edit Patient Data.

1. Setting Up Your Sites Logical Link

- **If you are not runningCaché (Open M system), enable the HL SEVEN service in the UCX set-up (HLSEVEN this is just an example of the UCX service name)**

  Make sure UCX set up for HLSEVEN (this should be your sites service name, HLSEVEN is just an example) service is enabled and the HLSEVEN.COM (site com file name) file contains the IEN (from file 870) for the site's HL7 logical link (VA<3 letter site abbreviation> example: VABAY is for Bay Pines). See Appendix E for more information.

NOTE: The UCX service is what enables sites to send your site messages. If the UCX service is disabled, no messages will come into your site from any other site you share patients with. One way to help keep this UCX service up and running after a system shutdown is to setup the specific UCX service to be enabled upon UCX startup (reboot). This can be done from within UCX by doing the following:

UCX> **SET CONFIG ENABLE SERVICE HLSEVEN**
Where HLSEVEN is the name of the service.

- **Caché (Open M system) Site**

- Caché (Open M system) does NOT use UCX. Instead a Single Threaded Listener or Multi-Threaded Listener (suggested) is used. See Appendix E for further setup instructions on these Listener types.

- **Setup HL Lower Level Protocol Parameter file (#869.2) entry for your site**

  - **If your site is running UCX or a Multi-Threaded Listener:**
    The HL Lower Level Protocol Parameter file (#869.2) for your site's entry (VA<site three letter abbreviation> TCP - for example in Bay Pines VAMC the entry would be VABAY TCP) needs to that the TCP/IP Service Type field (#400.03) set to **MULTI LISTENER**. [See patch HL*1.6*19 for further information.]

Via VA FileMan

```
>D P^DI
VA FileMan 21.0
Select OPTION: 1  ENTER OR EDIT FILE ENTRIES
INPUT TO WHAT FILE: OPTION// 869.2  HL LOWER LEVEL PROTOCOL PARAMETER
                                          (197 entries)
EDIT WHICH FIELD: ALL//.01 Name
THEN EDIT:LLP TYPE
THEN EDIT:TCP/IP ADDREESS
THEN EDIT:TCP/IP PORT
THEN EDIT: TCP/IP SERVICE TYPE

Select HL LOWER LEVEL PROTOCOL PARAMETER NAME: VABAY TCP <<this should be your
site
NAME: VABAY TCP// <RET>
LLP TYPE: TCP// <RET>
TCP/IP ADDRESS: 152.XX.XX.XX// <<your site's IP address>>
TCP/IP PORT: 5000//  << your site's port number associated with the listener
or UCX service>>
TCP/IP SERVICE TYPE: CLIENT (SENDER)// ??

This field determines if the Logical Link is the client (sender) or a listener
(server) of a message.  Choose from:

      CLIENT (SENDER):
      Indicates that this Logical Link connects to a target system,
      with the current system acting as the sender.

      SINGLE LISTENER:
Designates that the current system is a server (listener), using a single M
process to do the listening.

      MULTI LISTENER:
Designates that the current system is a server (listener), creating multiple
background processes.

TCP/IP SERVICE TYPE:  CLIENT (SENDER)//Multi Listener
```

- **Caché sites: Start the Listener.**

```
Select OPTION NAME: HL7 MAIN MENU  HL MAIN MENU        HL7 Main Menu

   1      V1.5 OPTIONS ...
   2      V1.6 OPTIONS ...
   3      Activate/Inactivate Application
   4      Print/Display Menu ...
   5      Purge Message Text File Entries

Select HL7 Main Menu Option: 2  V1.6 OPTIONS

   1      Communications Server ...
   2      Interface Workbench
   3      Message Requeuer

Select V1.6 OPTIONS Option: 1  Communications Server

   1      Edit Communication Server parameters
   2      Manage incoming & outgoing filers ...
```

```
   3      Monitor incoming & outgoing filers

   4      Start LLP
   5      Stop LLP
   6      Systems Link Monitor
   7      Logical Link Queue Management ...
   8      Report
   9      View Transmission Log
          Restart All Links and Filers
          Shut Down All Logical Links

Select Communications Server Option: 4  Start LLP

This option is used to launch the lower level protocol for the
appropriate device.  Please select the node with which you want
to communicate

Select HL LOGICAL LINK NODE: VAxxx       xxx=your station abbreviation
                                                  Saginaw=VASAG
                                                 Bay  Pines=VABAY

     Select one of the following:

          F         FOREGROUND
          B         BACKGROUND
          Q         QUIT

Method for running the receiver: B//  <RET> BACKGROUND
Job was queued as 80869.
```

2. **If you are not running a Caché (Open M system), have the system manager review VMS ENQUE QUOTA [Enqlm: 1000] setting.**
   Have system manager at site review VMS ENQUE QUOTA [Enqlm: 1000] setting; it should not be less than 1000. The change need only be made for the user account implementing CIRN/MPI. This may be hard coded in slot master .COM file to 300, which may cause the MPI load process to have a VMS level error. VMS default setting is 2000. This is hard coded in slot master .COM file to 300, which may cause the MPI load process to have a VMS level error. VMS default setting is 2000.

3. **Check disk space for 150 Mb of available space for growth in the ^HL* globals.**
   If space is at a minimum, you may want to run some HL7 purges prior to starting CIRN-PD/MPI initialization processes.

4. **HL7 Purge options**

   Check that the HL7 Purge options are scheduled to run after the initialization process, since several of the following steps produce high volume messaging. This is a suggested step if you have concerns about disk space where the HL7 globals are stored.

NOTE: This is a suggested step if you have concerns about disk space where the HL7 globals are stored.

5. **Address any installation messages that need further action such as, "Missing MPI in Institution file, need to update before proceeding" and any other issues related to the Institution file and HL7.**

6. Set Site Parameters

- **Site Parameters Edit for CMOR [MPIF SITE PARAMETER] found on the Patient Admin Coordinator Menu.**

  Your site can select whether requests for a change to a patient's CMOR will be processed automatically or placed in a review file for manual processing. If you select MANUAL, mail messages will be sent to the mail group entered in "New Request Mailgroup" whenever change requests are received.

```
Type of Processing: MANUAL// ??
     Based on this field setting, any CMOR change request received
     from another station can either be manually reviewed or automatically
     approved.
     Choose from:
       0        MANUAL
       1        AUTOMATIC
Type of Processing: MANUAL// <RET>
New Request Mailgroup: MPIF CMOR REQUEST// ??
     If the CMOR Request Change parameter is set to manual, new CMOR change
     requests received will notify the mailgroup entered in this field.  This
     gives a means of prompting someone to review the new request.
New Request Mailgroup: MPIF CMOR REQUEST // <RET>
```

- **Edit Merge Parameter [RG MERGE EDIT PARAMETER] found on the Patient Admin Coordinator Menu**

  Your site can select whether updates to your Patient file that come from other sites will be processed automatically or placed in a review file for manual processing. This parameter will have no effect at a non-CMOR site.

NOTE: Setting this parameter to "NOT AUTO ACCEPT", places the responsibility on MAS to keep up patient demographic changes that are received from non-CMOR sites. These changes can be reviewed using the Patient Data Review option, VAFC Exception Handler. Sites may want to start with NOT AUTO ACCEPT and then change to AUTO ACCEPT once comfortable with the types of changes.

```
AUTO ACCEPT DEMOGRAPHICS: NOT AUTO ACCEPT// ??
     This field is the parameter that a site would set to determine if data
     coming from another site, that is not the owner of the data, could be
     automatically uploaded.
     If this field is not set then the software will assume that all incoming
     data can not be automatically uploaded.
     Choose from:
       1        AUTO ACCEPT
       0        NOT AUTO ACCEPT
AUTO ACCEPT DEMOGRAPHICS: NOT AUTO ACCEPT// <RET>
```

- **HL7 Application Parameters file**

Check that the correct Station Number is entered in the Facility Name field (#3) of the HL7 Application Parameter file (#771). Local modifications to your Institution file may conflict with CIRN installation set-up.

```
Select HL7 Main Menu Option:
   1      V1.5 OPTIONS ...
   2      V1.6 OPTIONS ...
   3      Activate/Inactivate Application
   4      Print/Display Menu ...
   5      Purge Message Text File Entries

Enter ?? for more options, ??? for brief descriptions, ?OPTION for help text.

Select HL7 Main Menu Option: 2  V1.6 OPTIONS

1      Communications Server ...
   2      Interface Workbench
   3      Message Requeuer

Enter ?? for more options, ??? for brief descriptions, ?OPTION for help text.

Select V1.6 OPTIONS Option: 2  Interface Workbench.

                            Currently Defined
                                Applications

(#) MPIF CMOR RSLT
 Facility Name: {Your Station # must be here}     Active/Inactive: ACTIVE
  Country Code: USA                            HL7 Field Separator: <DEFAULT>
    Mail Group:                             HL7 Encoding Characters: <DEFAULT>

(#) MPIF CMOR COMP
 Facility Name: : {Your Station # must be here}  Active/Inactive: ACTIVE
  Country Code: USA                            HL7 Field Separator: <DEFAULT>
    Mail Group:                             HL7 Encoding Characters: <DEFAULT>

(#) MPIF-STARTUP
 Facility Name: : {Your Station # must be here}  Active/Inactive: ACTIVE
  Country Code:                                HL7 Field Separator: <DEFAULT>
    Mail Group:                             HL7 Encoding Characters: <DEFAULT>

(#) MPIF A29 SERVER
 Facility Name: : {Your Station # must be here}  Active/Inactive: ACTIVE
  Country Code:                                HL7 Field Separator: <DEFAULT>
    Mail Group:                             HL7 Encoding Characters: <DEFAULT>

(#)  MPIF A30 SERVER
  Facility Name: : {Your Station # must be here} Active/Inactive: ACTIVE
  Country Code:                                HL7 Field Separator: <DEFAULT>
    Mail Group:                             HL7 Encoding Characters: <DEFAULT>

(#) MPIF LOC/MIS
 Facility Name: : {Your Station # must be here}  Active/Inactive: ACTIVE
  Country Code:                                HL7 Field Separator: <DEFAULT>
    Mail Group:                             HL7 Encoding Characters: <DEFAULT>
```

```
(#) RG CIRN
 Facility Name: : {Your Station # must be here}  Active/Inactive: ACTIVE
  Country Code: USA                          HL7 Field Separator: <DEFAULT>
    Mail Group: CIRN HL7 PROBLEMS         L7 Encoding Characters: <DEFAULT>

 (#) VAFC PIMS
 Facility Name: : {Your Station # must be here}  Active/Inactive: ACTIVE
  Country Code: USA                          HL7 Field Separator: <DEFAULT>
    Mail Group: CIRN HL7 PROBLEMS        HL7 Encoding Characters: <DEFAULT>
```

NOTE: This can also be accomplished via VA FileMan.

7. Assign Menus

Menu	Assign to:
CIRN Master Menu [RGMGR]	IRM personnel
CIRN Initialization Menu .... [RGINIT MENU] (installed in CIRN V. 0.5)	IRM personnel
CIRN IRM Menu ... [RG IRM MENU]	IRM personnel
CIRN Patient Admin Coordinator Menu ... [RG ADMIN COORD MENU]	Patient Administration/MAS Coordinator or ADPAC
CIRN Patient Admin User Menu ... [RG ADMIN USER MENU]	Patient Administration/MAS users

8. Logical Links Maintenance

Check HL Logical Links for correct institutions and lower level parameters using VA FileMan. Using VA FileMan, check to be sure that all the Institution (#.02) and LLP Parameters (#2) fields for the VA* and MPIVA links in the HL Logical Link (#870) file are populated with the correct information.

```
Select OPTION: PRINT FILE ENTRIES

OUTPUT FROM WHAT FILE: CIRN SITE PARAMETER// 870  HL LOGICAL LINK
                                          (20 entries)
SORT BY: NODE// <RET>
START WITH NODE: FIRST// VAA
GO TO NODE: LAST// VAZ
  WITHIN NODE, SORT BY: <RET>
FIRST PRINT FIELD: .01  NODE
THEN PRINT FIELD: LLP PARAMETERS
THEN PRINT FIELD: INSTITUTION
THEN PRINT FIELD: <RET>

  ************************
Heading (S/C): HL LOGICAL LINK LIST  Replace <RET>
START AT PAGE: 1// <RET>
DEVICE: <RET>
HL LOGICAL LINK LIST                        SEP 23,1998  14:39    PAGE 1
NODE        LLP PARAMETERS                INSTITUTION
-------------------------------------------------------------------------
VABAC       VABAC TCP                     BATTLE CREEK, MI
VABAY       VABAY TCP                     BAY PINES, FL
VAFC-SEND   VAFC-SEND                     No institution link needed here
VAFH-SEND   VAFH-SEND                     No institution link needed here
VAGAI       VAGAI TCP                     GAINESVILLE, FL
```

```
VAIND       VAIND TCP                       INDIANAPOLIS, IN
VAMIA       VAMIA TCP                       MIAMI, FL
VANIN       VANIN TCP                       MARION, IN
VATAM       VATAM TCP                       TAMPA, FL
VAWPB       VAWPB TCP                       WEST PALM BEACH, FL
```

This is not a complete list of Logical Links and Institutions. For a complete list and instructions for correcting any entries that are missing needed Institutions., see Appendix H.

NOTE: You will also need to check the Logical Link for the MPIVA (this is the MPI logical link) to be sure that the Institution is MPI. This can be accomplished via a VA FileMan Inquiry into the HL Logical Link file (#870) and selecting to view the MPIVA logical link..

MPIVA DIR should NOT have an entry for the Institution (#.02) field. MPIVA DIR is the logical link for the real-time connections to the MPI.

9. Add members to new mail groups

Mailgroup	Suggested Members
RG CIRN DEMOGRAPHIC ISSUES	Personnel that deal with patient data issues.
RG CIRN HL7 PROBLEMS	Person who will monitor CIRN HL7 problems.
MPIF EXCEPTIONS	IRM person(s) or technical staff who will be monitoring and responding to technical exception message related to the Initialization process and. daily operations.
MPIF CMOR REQUEST	Personnel that will process CMOR Change Requests.

NOTE: The RG CIRN DEMOGRAPHIC ISSUES mail group will potentially have a large number of messages sent to it during the Initialization process. This will only occur in large numbers primarily during the initialization process, but other messages can be generated during daily operations. The MPIF EXCEPTIONS mail group will get technical issue messages. It is suggested that the persons in this mail group not be in the RG CIRN DEMOGRAPHICS ISSUES mail group to avoid having these technical messages "lost" in the patient data messages.

10. Start MPI link

Using the START LLP option, start the MPIVA logical link.

```
>D ^XUP

Select OPTION NAME: HL7 MAIN MENU

Select HL7 Main Menu Option: 2  V1.6 OPTIONS

Select V1.6 OPTIONS Option: 1  Communications Server

Select Communications Server Option: STARt LLP

This option is used to launch the lower level protocol for the
appropriate device.  Please select the node with which you want
```

```
to communicate

Select HL LOGICAL LINK NODE: MPIVA

Select one of the following:

          F         FOREGROUND
          B         BACKGROUND
          Q         QUIT

Method for running the receiver: B// BACKGROUND
Job was queued as 7037030.
```

11. Turn on HL7 Send 2.3 messages in the CIRN Site Parameter file.

Stop/Send/Suspend CIRN Messages [RG CIRN PROCESS CONTROL]

The Stop/Send/Suspend CIRN Message Processing option is provided as a standalone option. It is **NOT** to be attached to any menu. This option allows IRM to set the message activity state (Send/Suspend/Stop). This option is used to edit the Stop CIRN Messaging field (#16) in the CIRN Site Parameter file (#991.8), to stop/send/suspend CIRN messages.

You must be in SEND mode to begin the MPI Initialization phase.

STOP - should be used only to totally shutdown HL7 V. 2.3 and CIRN messages. It should only be used under the direction of Technical Services.

SUSPEND - should be used in an emergency situation to suspend HL7 V. 2.3 and CIRN messages if the volume of messages is affecting system performance. Technical Services should also be called in this situation.

SEND - normal operating mode.

```
D ^XUP
Setting up programmer environment
Terminal Type set to: C-VT320
Select OPTION NAME: RG CIRN PROCESS CONTROL          STOP/SEND/SUSPEND CIRN
messages
STOP CIRN MESSAGING: STOP MESSAGES// SEND
     In sync with MAS parameter.
```

NOTE: If not in sync with the MAS Parameter, you will need to contact your MAS Coordinator to get the Send PIMS HL7 V2.3 Messages field (in the MAS Parameters file(#43)) set to SEND also. If the two parameters are not in sync, the implementation process can not continue.

12. Start Event Queue

From the CIRN IRM Menu, choose CIRN Event Queue Manager ... [RGEQ MGR]

Start CIRN Event Queue [RGEQ START]
Halt CIRN Event Queue [RGEQ STOP]
Error Processing CIRN Event Queue [RGEQ ERROR]
CIRN Event Queue Class Statistics [RGEQ STATS]

Then select the Start CIRN Event Queue option.

During the Initialization to the MPI, the Event Queue is used to send the Subscription "add me" Messages to the CMOR and to update the list of Subscribers from the CMOR to the other interested facilities. These messages will be held in the ^RGEQ global until sent.

More extensive information on the Event Queue features and use can be found in the *CIRN Patient Demographics (CIRN-PD) Technical Manual* in the Menu Options for IRM section and in section Appendix E – CIRN Event Queue of that manual.

Start CIRN Event Queue [RGEQ START]

```
Select CIRN Event Queue Manager Option: Start CIRN Event Queue
Are you sure you want to start the CIRN processor? NO// YES ... done.
```

13. Using TaskMan, schedule the Update Batch Job for HL7 v2.3 [VAFC Batch Update] background job to run

As soon as the Patient File Initialization to MPI has messages returned from the MPI and all seems to be well, schedule the Update Batch Job for HL7 V. 2.3 **[**VAFC BATCH UPDATE] background job via TaskMan to process the Treating Facility Updates and any Patient Update messages waiting in the ADT/HL7 Pivot file (#391.71).

NOTE: Starting this background job during the MPI load can generate a large volume of network traffic.

Background Job	Restart Setting Recommendations	Frequency Recommendations
Update Batch Job for CIRN [VAFC BATCH UPDATE]	Special Queuing field should be set to Startup	Every 15 minutes (this job may already be scheduled to run for NPTF or COTS using patch DG*5.3*91.

The Event Queue and the VAFC Batch Update job will send messages to CMOR sites. These messages will show up on the HL7 Link Monitor as MESSAGES TO SEND column for the corresponding links. These links will need to be started up via the HL7 option, noted in step 14.

14 Starting Up Other Logical Links

As messages begin to pile up on the logical links to other facilities, it will be necessary to start these links up, if not already running. This is done in the same manner as the MPI link was started in step 12.

15. When all CIRN messaging to all links is complete, if necessary, run the HL7 purge option

It may be necessary to use the HL7 option Purge Message Text File Entries [HL PURGE TRANSMISSIONS] to purge the successfully completed HL7 messages. This can be done now if your site is concerned about disk space consumption. This job should be scheduled via TaskMan to run at regular intervals.

Use the HL7 option, Systems Link Monitor [HL MESSAGE MONITOR] to identify whether CIRN messaging is complete.

Job	Messaging is complete if…	If there are still messages…
Initialization : ICN and CMOR assignments	all the VA* links and the MPIVA link are not increasing on the to send or sent columns **and** the ^HLMA("AC","O", <ien of logical link in the HL Logical Link file (#870) for all VA* links as well as the MPIVA link> is empty.	
Subscription Control	^RGEQ("SCN_REQ", entries are all gone and no new entries are being created.	make sure that the Event Queue is running
Treating Facility List	messages in the ADT/HL7 Pivot file cross reference (^VAT(391.71,"AXMIT",5,) are all gone, and no new entries are being created.	make sure the VAFC Batch Update job is scheduled If this job completes and entries still remain, see the trouble shooting guide (Appendix G) for more information.

If the messages received and messages processed columns have stopped increasing, messaging for the initialization to the MPI, subscription control, and treating facility messaging has been completed.

```
Select Communications Server Option: 6  Systems Link Monitor

    SYSTEM LINK MONITOR for ALBANY, NY (Test System)

            MESSAGES  MESSAGES   MESSAGES  MESSAGES  DEVICE
NODE        RECEIVED  PROCESSED  TO SEND   SENT      ON-LINE  STATE

RA-PHIL      5          5          5        5         Y       Idle
NPTF         0          0          7        7         Y       Idle
VABAY        8          8          0        0                 0 Server
MPIVA        0          0          20       20        Y       Idle
VAWPB        0          0          1        1         Y       Idle

     Number of incoming filers running => 1
     Number of outgoing filers running => 1

Select a Command:
 (N) NEXT (B) BACKUP (Q) QUIT (A) ALL LINKS (S) SCREENED (?) HELP:
```

```
Select HL7 Main Menu Option:

   1      V1.5 OPTIONS ...
   2      V1.6 OPTIONS ...
   3      Activate/Inactivate Application
   4      Print/Display Menu ...
   5      Purge Message Text File Entries


Select HL7 Main Menu Option: 5  Purge Message Text File Entries
Enter the cutoff date for all messages REGARDLESS OF STATUS:  T-90//  <RET>
```

16. Turn auditing on for Name (#.01), Intgration Control Number (#991.01), ICN Checksum (#991.02), CIRN Master of Record (#991.03) fields in the Patient file (#2).

```
Via VA FileMan

VA FileMan 21.0
Select OPTION: OTHER OPTIONS
Select OTHER OPTION: AUDITING
Select AUDIT OPTION: 5  TURN DATA AUDIT ON/OFF
AUDIT FROM WHAT FILE: PATIENT// 2
Select FIELD: .01  << here is where you would enter the field numbers
AUDIT: NO//YES, ALWAYS
```

17. Start background jobs

Background Job	Restart Setting Recommendations	Frequency Recommendations
Event Queue Autostart [RGEQ AUTOSTART]	Special Queuing field should be set to Persistent and Startup (SP)	
Local/Missing ICN Resolution Background Job [MPIF LOC/MIS ICN RES]	Special Queuing field should be set to Startup	Special Queuing field should be set to Startup

Appendix C – Messaging Setups

Setup of CIRN Patient Demographic Protocols:

NAME: **RG ADT-A04 CLIENT** ITEM TEXT: **CIRN'S A04 CLIENT**
TYPE: **subscriber** CREATOR: package installer
PACKAGE: CLINICAL INFO RESOURCE NETWORK
DESCRIPTION: **This client protocol processes Admission, Discharge, and Transfer (ADT) update patient information (event code A04) Health Level Seven (HL7) messages. This protocol also reroutes the messages to the CIRN Master Of Record (CMOR) and from the CMOR to all other subscribers.**
EXIT ACTION: TIMESTAMP: 57363,53002
CLIENT (SUBSCRIBER): **RG CIRN** MESSAGE TYPE RECEIVED: **ADT**
EVENT TYPE: **A04** PROCESSING ID: **PRODUCTION**
APPLICATION ACK TYPE:**NE**
VERSION ID: **2.3** MESSAGE TYPE GENERATED: **ADT**
GENERATE/PROCESS **ROUTINE: D ^RGRSPT**
ROUTING LOGIC: **D EN^RGRSDYN("RG ADT-A04 CLIENT",0)**

NAME: **RG ADT-A08 CLIENT**
ITEM TEXT: **CIRN's ADT-A08 client protocol**
TYPE: **subscriber** CREATOR: package installer
PACKAGE: CLINICAL INFO RESOURCE NETWORK
DESCRIPTION: **This client protocol processes Admission, Discharge, and Transfer (ADT) update patient information (event code A08) Health Level Seven (HL7) messages. This protocol also reroutes the messages to the CIRN Master Of Record (CMOR) and from the CMOR to all other subscribers.**
TIMESTAMP: 57180,38695 CLIENT (SUBSCRIBER): **RG CIRN**
MESSAGE TYPE RECEIVED: **ADT** EVENT TYPE: **A08**
PRIORITY: **DELAYED** PROCESSING ID: **PRODUCTION**
VERSION ID: **2.3** MESSAGE TYPE GENERATED: **ADT**
GENERATE/PROCESS ROUTINE: **D ^RGRSPT**
ROUTING LOGIC: **D EN^RGRSDYN("RG ADT-A08 CLIENT",0)**

NAME: **VAFC ADT-A04 SERVER**
ITEM TEXT: **This protocol fires off of the PIMS Registration option**
TYPE: event driver CREATOR: package installer
PACKAGE: REGISTRATION
DESCRIPTION: **This server protocol fires when a patient is registered. It generates a Health Level Seven (HL7) register a patient (event code A04) message.**
ITEM: **VAFC TFL-UPDATE CLIENT**
ITEM: **DG PTF ADT-A04 CLIENT**
ITEM: **RG ADT-A04 CLIENT**
ITEM: **RG PT SUBSCRIPTION RECEIVER**
TIMESTAMP: 57363,53002 SERVER APPLICATION: **VAFC PIMS**
MESSAGE TYPE RECEIVED: **ADT** EVENT TYPE: **A04**
PROCESSING ID: **PRODUCTION** ACCEPT ACK CODE: **NE**
APPLICATION ACK TYPE: **NE** VERSION ID: **2.3**

```
NAME: VAFC ADT-A08 SERVER
  ITEM TEXT: Registration's ADT-A08 Server Protocol
  TYPE: event driver                    CREATOR: package installer
  PACKAGE: REGISTRATION
  DESCRIPTION:   This server protocol fires when a patient record is updated.
It generates a Health Level Seven (HL7) update a patient (event code A08)
message.
  ITEM: VAFC TFL-UPDATE CLIENT
  ITEM: DG PTF ADT-A08 CLIENT
  ITEM: RG ADT-A08 CLIENT
  ITEM: RG PT SUBSCRIPTION RECEIVER
  TIMESTAMP: 57180,38695                SERVER APPLICATION:  VAFC PIMS
  MESSAGE TYPE RECEIVED: ADT            EVENT TYPE: A08
  PRIORITY: DELAYED                     PROCESSING ID: PRODUCTION
  ACCEPT ACK CODE: NE                   APPLICATION ACK TYPE: NE
  VERSION ID: 2.3                       GENERATE/PROCESS ACK ROUTINE:  Q
```

Setup of CIRN-PD/MPI Protocols

```
NAME: MPI ICN-Q02 SERVER                TYPE: event driver
  CREATOR: package installer            PACKAGE: MASTER PATIENT INDEX VISTA
  ITEM: MPI TEST
  TIMESTAMP: 57380,66413                SERVER APPLICATION:  MPI-STARTUP
  MESSAGE TYPE RECEIVED: VTQ            EVENT TYPE: Q02
  PROCESSING ID: PRODUCTION             ACCEPT ACK CODE: NE
  APPLICATION ACK TYPE: NE              VERSION ID: 2.3
  MESSAGE TYPE GENERATED: VTQ
  GENERATE/PROCESS ACK ROUTINE:  D ADDPAT^MPIFBT2

NAME: MPIF A28 REQUEST
  ITEM TEXT: MPIF A28 REQUEST           TYPE: event driver
  CREATOR: package installer            PACKAGE: MASTER PATIENT INDEX VISTA
  ITEM: MPIF A28 RESPONSE
  TIMESTAMP: 57572,47295                SERVER APPLICATION:  MPIF LOC/MIS
  MESSAGE TYPE RECEIVED: ADT            EVENT TYPE: A28
  PRIORITY: IMMEDIATE                   PROCESSING ID: PRODUCTION
  ACCEPT ACK CODE: NE                   APPLICATION ACK TYPE: NE
  VERSION ID: 2.3                       MESSAGE TYPE GENERATED:  ADT

NAME: MPIF A28 RESPONSE
  ITEM TEXT: MPIF A28 RESPONSE          TYPE: subscriber
  CREATOR: package installer            PACKAGE: MASTER PATIENT INDEX VISTA
  TIMESTAMP: 57572,47295                CLIENT (SUBSCRIBER):  MPIF LOC/MIS
  MESSAGE TYPE RECEIVED: ADT            EVENT TYPE: A28
  PRIORITY: IMMEDIATE                   PROCESSING ID: PRODUCTION
  LOGICAL LINK: MPIVA                   VERSION ID: 2.3
  ACCEPT ACK CODE: NE                   APPLICATION ACK TYPE: NE
  MESSAGE TYPE GENERATED: ADT           GENERATE/PROCESS ROUTINE:  Q
  SENDING FACILITY REQUIRED?: YES       RECEIVING FACILITY REQUIRED?:  YES
  DATE/TIME OF MESSAGE REQUIRED?:  YES
```

```
NAME: MPIF A29
  ITEM TEXT: INACTIVATE ICN              TYPE: subscriber
  CREATOR: package installer             PACKAGE: MASTER PATIENT INDEX VISTA
  DESCRIPTION:   Subscriber for the Inactivate ICN protocol
  TIMESTAMP: 57572,47295                 CLIENT (SUBSCRIBER): MPIF MPI
  MESSAGE TYPE RECEIVED: ACK             EVENT TYPE: A29
  PRIORITY: IMMEDIATE                    PROCESSING ID: PRODUCTION
  LOGICAL LINK: MPIVA                    VERSION ID: 2.3
  ACCEPT ACK CODE: NE                    APPLICATION ACK TYPE: NE
  MESSAGE TYPE GENERATED: ADT            GENERATE/PROCESS ROUTINE: Q
  SENDING FACILITY REQUIRED?: YES        RECEIVING FACILITY REQUIRED?: YES

NAME: MPIF A29 SERVER
  ITEM TEXT: INACTIVATE ICN              TYPE: event driver
  CREATOR: package installer             PACKAGE: MASTER PATIENT INDEX VISTA
  DESCRIPTION:   Inactivates ICN at the MPI and removes the CIRN/MPI fields
populated when ICN is added to Patient file.
  ITEM: MPIF A29
  TIMESTAMP: 57572,47295                 SERVER APPLICATION: MPIF A29 SERVER
  MESSAGE TYPE RECEIVED: ADT             EVENT TYPE: A29
  PRIORITY: IMMEDIATE                    PROCESSING ID: PRODUCTION
  ACCEPT ACK CODE: NE                    APPLICATION ACK TYPE: NE
  VERSION ID: 2.3                        MESSAGE TYPE GENERATED: ADT
  GENERATE/PROCESS ROUTINE: D PAT^MPIFDEL

NAME: MPIF A30
  ITEM TEXT: MERGE ICN                   TYPE: subscriber
  CREATOR: package installer             PACKAGE: MASTER PATIENT INDEX VISTA
  DESCRIPTION:   Merges ICN at the MPI and all subscriber sites.
  TIMESTAMP: 57572,47295                 CLIENT (SUBSCRIBER): MPIF MPI
  MESSAGE TYPE RECEIVED: ADT             EVENT TYPE: A30
  PRIORITY: IMMEDIATE                    PROCESSING ID: PRODUCTION
  ACCEPT ACK CODE: NE                    APPLICATION ACK TYPE: NE

  VERSION ID: 2.3                        MESSAGE TYPE GENERATED: ADT
  GENERATE/PROCESS ROUTINE: D IN^MPIFMER
  SENDING FACILITY REQUIRED?: YES        RECEIVING FACILITY REQUIRED?: YES
  ROUTING LOGIC: D LINKS^MPIFMER

NAME: MPIF A30 SERVER
  ITEM TEXT: MERGE ICN                   TYPE: event driver
  CREATOR: package installer             PACKAGE: MASTER PATIENT INDEX VISTA
  ITEM: MPIF A30
  TIMESTAMP: 57589,29314                 SERVER APPLICATION: MPIF A30 SERVER
  MESSAGE TYPE RECEIVED: ADT             EVENT TYPE: A30
  PRIORITY: IMMEDIATE                    PROCESSING ID: PRODUCTION
  ACCEPT ACK CODE: NE                    APPLICATION ACK TYPE: NE
  VERSION ID: 2.3                        MESSAGE TYPE GENERATED: ADT
  GENERATE/PROCESS ROUTINE: D MER^MPIFMER
```

NAME: **MPIF CMOR COMPARISON CLIENT**
ITEM TEXT: **Change of CMOR Request** TYPE: **subscriber**
CREATOR: package installer PACKAGE: MASTER PATIENT INDEX VISTA
DESCRIPTION: **This client will make the CMOR request for change. This task used by the COMPARISON options. This should not be used for seeding the MPI with new patient/s.**
TIMESTAMP: 57700,28361 CLIENT (SUBSCRIBER): **MPIF CMOR COMP**
MESSAGE TYPE RECEIVED: **ADT** EVENT TYPE: **A31**
PROCESSING ID: **PRODUCTION** VERSION ID: **2.3**
ACCEPT ACK CODE: **NE** APPLICATION ACK TYPE: **NE**
MESSAGE TYPE GENERATED: **ADT**
GENERATE/PROCESS ROUTINE: **D ^MPIFQUE**4
SENDING FACILITY REQUIRED?: **YES** RECEIVING FACILITY REQUIRED?: **YES**
ROUTING LOGIC: **D LOGIC^MPIFQUE3**

NAME: **MPIF CMOR COMPARISON SERVER**
ITEM TEXT: **Control of the CMOR comparison process**
TYPE: **event driver** CREATOR: package installer
PACKAGE: MASTER PATIENT INDEX VISTA
DESCRIPTION: **This process will take all the patients that your site is not the CMOR for and send the CMOR Activity Score to the CMOR for comparison. If the score from your site, for that patient, is greater and the difference is more than 80% the CMOR will automatically be changed to your site.**

This process should run after the MPI initialization has been completed.
ITEM: **MPIF CMOR COMPARISON CLIENT**
TIMESTAMP: 57700,28421 SERVER APPLICATION: **MPIF CMOR COMP**
MESSAGE TYPE RECEIVED: **ADT** EVENT TYPE: **A31**
PROCESSING ID: **PRODUCTION** ACCEPT ACK CODE: **NE**
APPLICATION ACK TYPE: **NE** VERSION ID: **2.3**
GENERATE/PROCESS ACK ROUTINE: **Q**

NAME: **MPIF CMOR RESULT CLIENT**
ITEM TEXT: **Change of CMOR Client** TYPE: **subscriber**
CREATOR: package installer PACKAGE: MASTER PATIENT INDEX VISTA
DESCRIPTION: **This is the client protocol for the change of CMOR request.**
TIMESTAMP: 57700,28787 CLIENT (SUBSCRIBER): **MPIF CMOR RSLT MESSAG**E
TYPE RECEIVED: **ADT** EVENT TYPE: **A3**1
PROCESSING ID: **PRODUCTIO**N VERSION ID: **2.3**
ACCEPT ACK CODE: **NE** APPLICATION ACK TYPE: **NE**
MESSAGE TYPE GENERATED: **ADT**
GENERATE/PROCESS ROUTINE: **D EN^MPIFQUE5**
SENDING FACILITY REQUIRED?: **YES** RECEIVING FACILITY REQUIRED?: **YES**
ROUTING LOGIC: **Q**

NAME: M**PIF CMOR RESULT SERVER**
TYPE: **event drive**r CREATOR: package installer
PACKAGE: MASTER PATIENT INDEX VISTA
DESCRIPTION: **This is the server protocol for the Change of CMOR Requests.**
ITEM: **MPIF CMOR RESULT CLIENT**
TIMESTAMP: 57700,28787 SERVER APPLICATION: **MPIF CMOR RSLT**
MESSAGE TYPE RECEIVED: **ADT** EVENT TYPE: **A31**
PROCESSING ID: **PRODUCTION** ACCEPT ACK CODE: **NE**
APPLICATION ACK TYPE: **NE** VERSION ID: **2.3**
GENERATE/PROCESS ACK ROUTINE: **Q**

```
NAME: MPIF CMOR REQUEST
  ITEM TEXT: CIRN Master of Record Request
  TYPE: event driver                    CREATOR: package installer
  ITEM: MPIF CMOR RESPONSE
  TIMESTAMP: 57785,37602                SERVER APPLICATION:  RG CIRN
  MESSAGE TYPE RECEIVED: ADT            EVENT TYPE: A31
  PROCESSING ID: PRODUCTION             ACCEPT ACK CODE: NE
  APPLICATION ACK TYPE: NE              VERSION ID: 2.3


NAME: MPIF CMOR RESPONSE
  ITEM TEXT: CIRN Master of Record Response
  TYPE: subscriber                      CREATOR: package installer
  TIMESTAMP: 57394,60160                CLIENT (SUBSCRIBER):  RG CIRN
  MESSAGE TYPE RECEIVED: ADT            EVENT TYPE: A31
  PROCESSING ID: PRODUCTION             ACCEPT ACK CODE: NE
  APPLICATION ACK TYPE: NE              VERSION ID: 2.3
  MESSAGE TYPE GENERATED: ADT           GENERATE/PROCESS ROUTINE: D IN^MPIFHL7
  SENDING FACILITY REQUIRED?: NO        RECEIVING FACILITY REQUIRED?: NO
  SECURITY REQUIRED?: NO                DATE/TIME OF MESSAGE REQUIRED?: NO
  ROUTING LOGIC: Q

NAME: MPIF REAL-TIME QUERY (ADD PATIENT)
  ITEM TEXT: Add Patient to MPI         TYPE: action
  CREATOR: package installer            PACKAGE: MASTER PATIENT INDEX VISTA
  ENTRY ACTION: D ADD^MPIFQ1            TIMESTAMP: 57357,57410

NAME: MPIF REAL-TIME QUERY (HELP)
  ITEM TEXT: HELP                       TYPE: action
  CREATOR: package installer            PACKAGE: MASTER PATIENT INDEX VISTA
  DESCRIPTION:   HELP FOR REAL-TIME CIRN QUERY
  ENTRY ACTION: D HELP^MPIFQ1           TIMESTAMP: 57357,57410

NAME: MPIF REAL-TIME QUERY (SELECT PATIENT)
  ITEM TEXT: Select a Patient from List TYPE: action
  CREATOR: package installer            PACKAGE: MASTER PATIENT INDEX VISTA
  ENTRY ACTION: D SELECT^MPIFQ1         TIMESTAMP: 57357,57410

NAME: MPIF REAL-TIME QUERY MENU
  ITEM TEXT: actions for real-time query screen
  TYPE: menu                            CREATOR: package installer
  PACKAGE: MASTER PATIENT INDEX VISTA   COLUMN WIDTH: 32
  MNEMONIC WIDTH: 4
  ITEM: MPIF REAL-TIME QUERY (SELECT PATIENT)
  MNEMONIC: SP                          SEQUENCE: 21
  ITEM: MPIF REAL-TIME QUERY (ADD PATIENT)
  MNEMONIC: ADD                         SEQUENCE: 11
  ITEM: MPIF REAL-TIME QUERY (HELP)     MNEMONIC: HE
  SEQUENCE: 12
  HEADER: D SHOW^VALM                   MENU PROMPT: Select Action:
  TIMESTAMP: 57357,57410
```

```
NAME: MPIF TEST
  ITEM TEXT: MPI PROTOCOL                 TYPE: subscriber
  CREATOR: package installer              PACKAGE: MASTER PATIENT INDEX VISTA
  TIMESTAMP: 57700,28895                  CLIENT (SUBSCRIBER): MPIF MPI
  MESSAGE TYPE RECEIVED: ACK              EVENT TYPE: Q02
  PRIORITY: IMMEDIATE                     PROCESSING ID: PRODUCTION
  LOGICAL LINK: MPIVA                     ACCEPT ACK CODE: NE
  APPLICATION ACK TYPE: NE                VERSION ID: 2.3
  MESSAGE TYPE GENERATED: VTQ             GENERATE/PROCESS ROUTINE: Q
  SENDING FACILITY REQUIRED?: YES         RECEIVING FACILITY REQUIRED?: YES
  DATE/TIME OF MESSAGE REQUIRED?: YES
```

Appendix D - CIRN Master of Record Menu

CIRN Master of Record Main Menu (Exported in CIRN V. 0.5)

The CMOR (CIRN Master of Record) is the designated "owner" of the patient's demographic and clinical data and plays a major role in the distribution of demographic and clinical data to other sites. The CMOR Activity Score indicates to the MPI which patients in your Patient file are active. During initialization of your database with the MPI, the first site at which the MPI encounters a patient will be assigned as the CMOR. Following the initialization with the MPI, your site will run an option that identifies the shared patients for which you are **not** the CMOR. An option is provided to send messages to the CMOR sites in order to compare the CMOR Activity Scores and reassign the CMOR if that action appears to be appropriate.

The score is stored in the CMOR Activity Score field (#991.06) and the date it was calculated is entered into the Score Calculation Date field (#991.07) of the Patient file (#2).

The Start/Restart CMOR Score Calculation option calculates a CMOR Activity Score for the active patients in your Patient file (#2) based on activity (Current FY, FY-1, FY-2). In essence, the software assigns "points" for specific activity. The following table lists the Patient Activity Indices used along with the associated points tallied for each match.

PATIENT ACTIVITY INDICES	TIMEFRAME	CMOR POINTS
Outpatient Visits	Current FY	30 points
	FY (-1)	20 points
	FY (-2)	10 points
Appointments with Stop Code 323 (Primary Care)	Any Appts	50 (additional) points
Admissions	Current FY	50 points
	FY (-1)	40 points
	FY (-2)	30 points
Current (active) / New Prescriptions		20 points
Lab Tests	Last 12 months	10 points
X Rays	Last 12 months	20 points
Fee Basis	FEE AUTHORIZATION (TO DATE) on or after 1/1/96	0

The result is a standard measurement that CIRN can use in determining the CMOR site for each patient. This step is Required – you will not be able to begin the initialization phase (processing against the MPI) unless this is done. Patients with no activity for this timeframe (current FY and 2 FY prior) are excluded. Patients with a pseudo SSN and deceased patients will have a CMOR score calculated if they have patient activity within the timeframe. FEE BASIS patients with no activity but who have an AUTHORIZATION DATE after 10/1/96 are given a score of zero (0) to ensure that they are added to the MPI. Patients with a pseudo SSN and deceased patients will have a CMOR score calculated if they have patient activity within the timeframe.

Using the CIRN Master of Record (CMOR) Menu options

This step is the last within the CIRN Pre-Implementation phase. From the Pre-Implementation Menu, choose the Start/Restart CMOR Score Calculation option.

```
Select CIRN Pre-Implementation Menu Option:  CIRN Master of Record Menu


The CIRN CMOR Activity Score Generator

There are 525 records in your PATIENT file.
The last record number is 7169757. Has NEVER been run on your system.


   BGN      Start/Restart CMOR Score Calculation
   HLT      Stop CMOR Score Calculation
   IND      Calculate Individual Patient CMOR Score
   CSS      CMOR Score Calculation Status
   DRS      Duplicate Record by CMOR Score
   STAT     Duplicate Record Statistics

Select CIRN Master of Record Menu:  BGN  Start/Restart CMOR Score Calculation

This is the initial run of the CIRN CMOR patient activity score generator.
Requested Start Time: NOW//  042298@1800
```

At the " Requested Start Time: NOW//" prompt, enter the date and time you want the option to begin running. It is recommended that this calculation option be run over a weekend. The process may be stopped and started as desired by using the Stop CMOR Score Calculation option.

Start/Restart CMOR Score Calculation

The Start/Restart CMOR Score Calculation starts the background job that calculates the CMOR score for each active patient and records the score and date in your Patient file (#2). The process can be stopped during hours of peak activity and restarted at a later time.

```
Select CIRN Master of Record Menu Option:  BGN  Start/Restart CMOR Score
Calculation

This is the initial run of the CIRN CMOR patient activity score generator.
Requested Start Time: NOW// <RET> (OCT 08, 1997@15:42:19)   Task#, 52323
queued
```

Stop CMOR Score Calculation

This option is used to stop the background job prior to its completion.

```
Select CIRN Master of Record Menu Option: Stop CMOR Score Calculation
This option will stop the CIRN CMOR patient activity score generation
after it has completed calculating and filing the score for the current
patient.

Are you sure you want to do this? N// YES

Stop patient activity score generation after the current patient? N// YES

CIRN CMOR patient activity generation is flagged to stop after it has
completed the current patient.  This may take a short time.  Please check
the status later.
```

Calculate Individual Patient CMOR Score

This option calculates a CMOR patient activity score for an individual patient. After it is calculated the score is filed in the Patient file.

```
Select CIRN Master of Record Menu: IND  Calculate Individual Patient CMOR
Score
Select PATIENT NAME:  VETERAN,JOHN Q       10-06-50     111111111     4A-MED
  472-29     MED/ORANGE/3D     YES     SC VETERAN             --    G     G

This patient has an existing CMOR score of 2480 calculated on OCT 8,1997.

Do you want to calculate and file a new score for this patient? NO// y  YES

Working.  Please standby...

CMOR Activity Score: 2480 filed for Veteran,John Q  ssn: 111111111.
```

CMOR Score Calculation Status

This option is used to check on the progress of the Start/Restart background job.

```
Select CIRN Master of Record Menu: CSS CMOR Score Calculation Status
The CIRN CMOR Activity Score Generator

There are 278309 records in your PATIENT file.
The last record number is 7317156.
Last Patient Processed: VETERAN,JOHN Q NMN   SSN: 111111111   [RECORD# 35]

The CMOR score initialization last started on OCT 8,1997@15:42:29
 has processed 1 records and IS RUNNING.
```

Duplicate Record by CMOR Score

The Duplicate Record by CMOR Score option provides a listing of the CMOR scores from the Duplicate Record file (#15). It will display the number of duplicates per every 100 points. For example: there may be 10 patients with a score between 100 and 199. A NO SCORE means that the pair of potential duplicates had no score (no activity in the last three years). The total entries for the Patient file (#2) and the Duplicates Record file (#15) are also displayed.

The example below shows that the site has 184 duplicate record pairs where at least one of the 2 records has evidence of patient activity in the past 3 years. This will provide users with a better picture regarding the number of duplicate records that should be merged prior to the site initializing their Patient file (#2) against the Master Patient Index (MPI).

```
Duplicate Record Count by CMOR Score                    Page: 1
                                                        Date: JUL 23,1998@16:05
------------------------------------------------------------------------------
This report is drawn from the Duplicate Record file (#15) with
CMOR scores from the PATIENT file, CMOR ACTIVITY SCORE field.

- If both members of a pair have a score of zero the pair is
  counted in the '0' group.
- If one or both members of the pair have a score greater than
  zero, that pair is counted in the group for the higher score.
- If neither member of the pair have a CMOR score, the pair is
  counted in the 'NO SCORE' group.

          Score Range                   Count
          -----------                   -----

          1 - 99                           24
          100 - 199                         6
          200 - 299                         2
          300 - 399                         3
          400 - 499                         7
          500 - 599                         3
          600 - 699                         2
          700 - 799                         2
          900 - 999                         1
          1000 - 1099                       1
          1100 - 1199                       4
          1200 - 1299                       1
          1300 - 1399                       1
          1400 - 1499                       1
          1500 - 1599                       2
          1600 - 1699                       1
          1700 - 1799                       2
          1800 - 1899                       1
          2100 - 2199                       1
          2300 - 2399                       1
          2400 - 2499                       2
          2500 - 2599                       1
          2600 - 2699                       1
          2800 - 2899                       1
          3000 - 3099                       1
          3200 - 3299                       1
```

```
          3500 - 3599                      1
          7400 - 7499                      1
          7700 - 7799                      1
          NO SCORE                       108

TOTAL Potential Duplicates (15):         184
TOTAL Patients (2):                    77160..
```

Duplicate Record Statistics

This option provides the user with the percentiles of the patients in the various status categories for merge and verification status.

```
Select CIRN Master of Record Menu Option: STAT  Duplicate Record Statistics
Duplicate Record File Statistics Scan

Requested Start Time: NOW// <RET> (JUL 08, 1998@13:29:07)
  Task# 201539 queued to run.
```

When the scan is completed, you will receive a mail message similar to the following:

```
Subj: Duplicate Record Counts: ALBANY, NY  [#93979] 08 Jul 98 13:29  13 Lines
From: POSTMASTER  in 'IN' basket.   Page 1  **NEW**
------------------------------------------------------------------------------

Duplicate Record (^DPT) Statistics              Run Date: JUL 8,1998@13:29:11

ALBANY, NY (500)

Counts by:  Merge Status and Match Percentile:

    Merge Status: READY
      Percentile: 80          9
      Percentile: 90          23
      Percentile: 100         13

    Merge Status: MERGED
      Percentile: 100         4

    Merge Status: UNKNOWN
      Percentile: 60          27
      Percentile: 70          37
      Percentile: 80          42
      Percentile: 90          16
      Percentile: 100         13

  Counts by:  Verification Status and Match Percentile:

    Verification Status: POTENTIAL DUP., UNVERIF
      Percentile: 60          27
      Percentile: 70          37
      Percentile: 80          36
      Percentile: 90          1
      Percentile: 100         1

    Verification Status: REQUIRES RESOLUTION
```

```
      Percentile: 80          6
      Percentile: 90          15
      Percentile: 100         12

    Verification Status: VERIFIED DUPLICATE
      Percentile: 80          9
      Percentile: 90          23
      Percentile: 100         17


Select MESSAGE Action: IGNORE (in IN basket)//
```

NOTE: After CIRN PD/MPI is installed, the Merge Utility (XT*7.3*23) can not be used to merge patient records. Sites should make every attempt to resolve potential duplicates in the Pre-installation phase. Once sites initialize against the MPI, any unresolved duplicates will have to be held in abeyance until the merge software becomes "CIRN aware". It is recommended that the option to merge patient records be placed out of order until that time.

Appendix E - TCP/IP Set-up

Further information on TCP/IP set-up can be found on the **V***IST***A** intranet site http://152.127.1.95/softserv/infrastr.uct/ov/index.html .

UCX Setup for DSM/VMS sites

The UCX service may be used at any DSM site (recommended) or a Single Threaded Mumps Listener (see instructions below)

```
User Account
============

Username: HLSEVEN                           Owner:  HEALTH LEVEL SEVEN
Account:                                    UIC:    [50,45] ([HLSEVEN])
CLI:      DCL                               Tables: DCLTABLES
Default:  DSAx:[HLSEVEN]
LGICMD:   NL:
Flags:  DisCtlY Restricted Captive
Primary days:   Mon Tue Wed Thu Fri
Secondary days:                      Sat Sun
Primary   000000000011111111112222  Secondary 000000000011111111112222
Day Hours 012345678901234567890123  Day Hours 012345678901234567890123
Network:  ##### Full access ######            ##### Full access ######
Batch:    -----  No access  ------             -----  No access  ------
Local:    -----  No access  ------             -----  No access  ------
Dialup:   -----  No access  ------             -----  No access  ------
Remote:   -----  No access  ------             -----  No access  ------
Expiration:      (none)      Pwdminimum:  6   Login Fails:     1
Pwdlifetime:     (none)      Pwdchange:      (pre-expired)
Last Login:      (none) (interactive), 25-NOV-1996 15:28 (non-interactive)
Maxjobs:         0  Fillm:       500  Bytlm:      100,000
Maxacctjobs:     0  Shrfillm:      0  Pbytlm:           0
Maxdetach:       0  BIOlm:        18  JTquota:       1024
Prclm:           2  DIOlm:        18  WSdef:          300
Prio:            4  ASTlm:        24  WSquo:          500
Queprio:         0  TQElm:        10  WSextent:      2048
CPU:        (none)  Enqlm:      3000  Pgflquo:     100000
Authorized Privileges:
  NETMBX    OPER      SHARE     TMPMBX
Default Privileges:
  NETMBX    OPER      SHARE     TMPMBX


Directory and .COM File
=======================
Create directory DSAx:[hlseven] to serve as the home directory for HLSEVEN.
This directory will house the com file that is executed whenever a client
connects as well as a log file.

Directory DSAx:[HLSEVEN]
```

```
HLSEVEN.COM;7        25-NOV-1996 12:01:02.50
HLSEVEN.JOU;2         25-NOV-1996 10:06:35.68
HLSEVEN.LOG;30       25-NOV-1996 15:28:02.30

$!HLSEVEN.COM - MESSAGE SERVICE on the Alpha
$!--------------------------------------------------------------
$ purge/keep=2 sys$login:*.*
$ user="HLSEVEN"               !Where to send the messages
$ set noon                             !Don't stop
$ set proc/priv=(share)          !Required to use the MBX device
$ x=f%trnlnm("sys$net")         !This is our MBX device
$!
$ write sys$output x            !This can be viewed in the log file
$ set nover                    !Don't pass this stuff to the output device
$!--------------------------------------------------------------
$!   **Be sure this command line is correct for your system
$!   **and if access control is enabled, that this account has
$!   **access to this uci,vol and routine.  The number 999 should be
$!   **replaced with the internal entry number if file 870 for this
$!   **Logical Link
$!
$ dsm/environ=MGRISC/uci=ISC/vol=ISC/data="''x'^2" EN^HLCSTCP
$!--------------------------------------------------------------
```

<<editor's note: the 2 / noted here is the ien or name of the logical link for your site from the HL Logical Link file (#870)>>

```
$ logout/brief


UCX Service
===========
Use port 5000.

ISC6A1: ucx sho service hlseven/full
Service: HLSEVEN          State:     Enabled
Port:             5000    Protocol:  TCP            Address:  0.0.0.0
Inactivity:          5    User_name: HLSEVEN        Process:  HLSEVEN
Limit:              10    Active:      0            Peak:       1

File:         DSAx:[HLSEVEN]HLSEVEN.COM
Flags:        Listen

Socket Opts:  Rcheck Scheck
 Receive:           0     Send:              0

Log Opts:     None
 File:        not defined

Security
 Reject msg:  not defined
 Accept host: 0.0.0.0
 Accept netw: 0.0.0.0
```

```
Logical Link and LLP Parameters
==============================
Define your Logical Link and Lower Level Protocol parameters for
your new receiver. Be sure to set field CLIENT/SERVER to MULTI LISTENER.
HL Logical Link (file #870):

NODE: ISC-SF    <this will be the logical link for your site>
LLP PARAMETERS: SF-TCP-RECV <this will correspond to your site also>
  LLP ONLINE: NO                          STATE:
  TIME STOPPED:                           SHUTDOWN LLP ?:
  QUEUE SIZE: 10
  IN QUEUE BACK POINTER: 0                IN QUEUE FRONT POINTER: 0
  OUT QUEUE BACK POINTER: 0               OUT QUEUE FRONT POINTER: 0

HL Lower Level Protocol Parameters:

NAME: SF-TCP-RECV <corresponds to your site and the LLP Parameter in 870>
  LLP TYPE: TCP
  TCP/IP ADDRESS: 152.132.1.56 <this will correspond to your site's IP
address.  This field should not be updated with out contacting NVS due to the
other sites having this address to allow for communication between
facilities.>
  TCP/IP PORT: 5000 <recommend by HL7 Team>
  CLIENT/SERVER: MULTI LISTENER <only for your link>
```

Single-Threaded Listeners

Single-threaded listener mode for TCP/IP messaging is available for all currently supported M operating systems:

- Caché on NT
- DSM for OpenVMS

To set up single-threaded listeners, simply define an entry in the HL logical Link file for each single-threaded listener. No additional setup is required.

Logical Link Setup for Single Listener

Using the Interface Workbench, create a Logical Link entry for the single threaded listener. The following field settings are appropriate for single-threaded listeners:
LLP Type: TCP
TCP/IP address: DSM for OpenVMS: null; Caché for NT: IP address of listener system
TCP/IP Port: Port to listen on.
TCP/IP Service Type: SINGLE LISTENER
Persistent: Null
Startup Node: (set only for OpenVMS systems running dual TaskMan.)

```
HL-7 Interface Workbench Sep 03, 1998 13:16:55 Page: 15 of 27
Currently Defined
Logical Links
================================================================================
(22) A6A LISTENER
LLP Parameter: A6A5000 TCP/IP Address: <NONE>
```

```
LLP Type: TCP (T) TCP/IP Port: 5000
Queue Size: <DEFAULT> TCP/IP Service Type: SINGLE LISTENER
Institution: <NONE> Persistent: <DEFAULT>
Domain: <NONE> Startup Node: <NONE>
Autostart: <DEFAULT>
```

How to Start and Stop the Listener

To start single-threaded listeners, use the Start LLP option. Choose the Logical Link entry you defined for the listener. Typically you would run the link in the background. To stop the listener, use the Stop LLP option.

Multi-Threaded Listener Setup: Caché on NT

Kernel patch XU*8*78 provides a multi-threaded listener for TCP/IP messaging for Caché on NT systems.

Logical Link Setup

Using the Interface Workbench, create a Logical Link entry for the multi-threaded listener. The following field settings are appropriate for multi-threaded listeners for Caché on NT:
LLP Type: TCP
TCP/IP address: IP address of listener system
TCP/IP Port: (the port to listen on)
TCP/IP Service Type: MULTI LISTENER
Persistent: null
Startup Node: (set only for OpenVMS systems running dual TaskMan.)

```
HL-7 Interface Workbench Sep 03, 1998 13:16:55 Page: 15 of 27
Currently Defined
Logical Links
================================================================================
(23) A6A UCX LISTENER
LLP Parameter: A6A5000 TCP/IP Address: <NONE>
LLP Type: TCP (T) TCP/IP Port: 5000
Queue Size: <DEFAULT> TCP/IP Service Type: MULTI LISTENER
Institution: <NONE> Persistent: <DEFAULT>
Domain: <NONE> Startup Node: <NONE>
Autostart: <DEFAULT>
```

How to Start and Stop the Listener

To start the multi-threaded listener for Caché on NT systems, use the Start LLP option. Choose the Logical Link entry you defined for this listener. Typically you would run the link in the background. To stop the listener, use the Stop LLP option.

Appendix F – Exception Messages and Bulletins

CIRN Demographic Issues Bulletins

CIRN sends several bulletins to the CIRN DEMOGRAPHIC ISSUES mail group. These are designed to alert MAS personnel of problems related to CIRN information processing. They are:

Patient-related bulletins:
- Missing Data
- Patient Not Found
- Inconsistent Data
- Remote Sensitivity Indicated
- Address Change

Master File Update bulletins:
- Patient Not Found (Treating Facility type)
- Inconsistent Data (Treating Facility type)

The two types of HL7 messages (Patient-related messages and Master File updates) have distinct processing steps.

Patient Related Messages

These messages concern any changes in demographic information (such as Marital Status, address, etc.) for a particular patient. All incoming patient-related messages go through the same validation steps.

Check for missing data

The first step is the check on the incoming HL7 message to make sure that certain required fields are present. These fields are: Name, SSN (unless pseudo or not available), Date of Birth (DOB), and Integration Control number (ICN). If one of these fields is missing or null, a Missing Data bulletin is generated.

Note: This bulletin should be very rare since Name, SSN, and DOB are required fields which must be entered in order to add the patient to the database at the sending site. The Integration Control Number is provided by the MPI when the patient is initially processed.

```
Subj: CIRN - MISSING DATA  [#93351] 22 Apr 98  11:16  43 Lines
From: CIRN PACKAGE  in 'IN' basket.   Page 1
---------------------------------------------------------------------

The CIRN Package has received a message from:
ALLEN PARK, MI --> Site Number: 553
This message was missing required data

FIELD: .01 = BURNETT,COREL
FIELD: .02 = FEMALE
FIELD: .03 = 2500501
```

```
FIELD: .05 = UNKNOWN
FIELD: .08 = UNKNOWN/NO PREFERENCE
FIELD: .09 = 887438885
FIELD: .097 = 2980422
FIELD: .111 = TESTING NOT2
FIELD: .1112 = 99999
FIELD: .112 = "@"
FIELD: .113 = "@"
FIELD: .114 = ROUND LAKE
FIELD: .115 = NEW YORK
FIELD: .117 = CATTARAUGUS
FIELD: .131 = "@"
FIELD: .132 = "@"
FIELD: .211 = "@"
FIELD: .219 = "@"
FIELD: .2403 = "@"
FIELD: .301 = NO
FIELD: .302 = "@"
FIELD: .31115 = "@"
FIELD: .323 = "@"
FIELD: .351 = "@"
FIELD: .361 = EMPLOYEE
FIELD: .3612 = "@"
FIELD: .3615 = "@"
FIELD: 391 = EMPLOYEE
FIELD: 991.01 = "@"
FIELD: 991.02 =
FIELD: 991.03 = ALBANY, NY
FIELD: 1901 = NO
FIELD: DFN = 7171322
FIELD: FLD = .112;.113;.111;
FIELD: SENDING SITE = 553
FIELD: SENSITIVITY = "@"
FIELD: SENSITIVITY DATE = "@"
FIELD: SENSITIVITY USER = "@"
FIELD: SITENUM = 500
```

Locate the Patient in the Database

The next thing the software does is attempt to find the patient in your database by using the ICN. If the software cannot find the patient, it generates a Patient Not Found bulletin.

```
Subj: CIRN - PATIENT NOT FOUND  [#93362] 23 Apr 98  14:08  46 Lines
From: CIRN PACKAGE  in 'IN' basket.   Page 1  **NEW**
-------------------------------------------------------------------------------

The CIRN Package has received a message from:
ALBANY, NY --> Site Number: 500
This patient has your station as a subscriber, however
the patient was not found in your database.
-----------------------------------------------------
Remote Data

FIELD: .01 = BURNETT,CARAL
FIELD: .02 = FEMALE
FIELD: .03 = 2340512
FIELD: .05 = DIVORCED
```

```
FIELD: .08 = ISLAM
FIELD: .09 = 887438885
FIELD: .097 = 2980423
FIELD: .111 = NANCY STREET SENS
FIELD: .1112 = "@"
FIELD: .112 = "@"
FIELD: .113 = "@"
FIELD: .114 = "@"
FIELD: .115 = "@"
FIELD: .117 =
FIELD: .131 = "@"
FIELD: .132 = "@"
FIELD: .211 = "@"
FIELD: .219 = "@"
FIELD: .2403 = "@"
FIELD: .301 = NO
FIELD: .302 = "@"
FIELD: .31115 = "@"
FIELD: .323 = "@"
FIELD: .351 = "@"
FIELD: .361 = EMPLOYEE
FIELD: .3612 = "@"
FIELD: .3615 = "@"
FIELD: 391 = EMPLOYEE
FIELD: 991.01 = 1000304603
FIELD: 991.02 = 842887
FIELD: 991.03 = ALBANY, NY
FIELD: 1901 = NO
FIELD: DFN = 7169753
FIELD: FLD = .111;
FIELD: SENDING SITE = 500
FIELD: SENSITIVITY = "@"
FIELD: SENSITIVITY DATE = "@"
FIELD: SENSITIVITY USER = "@"
FIELD: SITENUM = 500
```

Do a match on SSN, and CIRN Master Record Site (CMOR)

The third step is the check on the incoming HL7 message to insure that certain data in the incoming message matches the information for the patient in the receiving system. This insures that this, in fact, is the same patient. Data fields that are checked are the Integration Control number (ICN) and the CMOR. If these fields do not match, an Inconsistent Data bulletin is generated. Also, the system compares the SSN; if they do not match, the system will still process the HL7 message and update the patient. It will also add the patient to the exception list and fire this bulletin.

```
Subj: CIRN - INCONSISTENT DATA  [#93364] 23 Apr 98  14:23  51 Lines
From: CIRN PACKAGE  in 'IN' basket.   Page 1
---------------------------------------------------------------------------

The CIRN Package has received a message from:
ALBANY, NY --> Site Number: 500
This message contains data that is inconsistent
with your site's data.

Local Name: BURNETT,COREL
Local SSN: 887438885
Local ICN: 1000304603
Local CMOR: BATAVIA, NY
```

```
-----------------------------------------------------
Remote Data

FIELD: .01 = BURNETT,CARAL
FIELD: .02 = FEMALE
FIELD: .03 = 2340512
FIELD: .05 = DIVORCED
FIELD: .08 = ISLAM
FIELD: .09 = 887438885
FIELD: .097 = 2980423
FIELD: .111 = NANCY STREET SENS
FIELD: .1112 = "@"
FIELD: .112 = "@"
FIELD: .113 = "@"
FIELD: .114 = "@"
FIELD: .115 = "@"
FIELD: .117 =
FIELD: .131 = "@"
FIELD: .132 = "@"
FIELD: .211 = "@"
FIELD: .219 = "@"
FIELD: .2403 = "@"
FIELD: .301 = NO
FIELD: .302 = "@"
FIELD: .31115 = "@"
FIELD: .323 = "@"
FIELD: .351 = "@"
FIELD: .361 = EMPLOYEE
FIELD: .3612 = "@"
FIELD: .3615 = "@"
FIELD: 391 = EMPLOYEE
FIELD: 991.01 = 1000304603
FIELD: 991.02 = 842887
FIELD: 991.03 = ALBANY, NY
FIELD: 1901 = NO
FIELD: DFN = 7169753
FIELD: FLD = .111;
FIELD: SENDING SITE = 500
FIELD: SENSITIVITY = "@"
FIELD: SENSITIVITY DATE = "@"
FIELD: SENSITIVITY USER = "@"
FIELD: SITENUM = 500
```

Remote Sensitivity Indicated

Now that we know for sure that we are in fact dealing with the correct patient, the system checks the incoming HL7 message to see if the patient is marked as a "Sensitive" patient at the sending site, but not at the receiving site. If this is true, a Remote Sensitivity Indicated bulletin is generated. This is a cue to mark the patient's record as "Sensitive" at the receiving site.

```
Subj: Remote Sensitivity Indicated  [#93001] 11 Mar 98  13:18  8 Lines
From: CIRN PACKAGE  in 'IN' basket.   Page 1  **NEW**
-------------------------------------------------------------------------------

The CIRN Package has received a message from:
ALBANY, NY --> Site Number: 500

This message indicates that Pt. BURNETT,CARAL is flagged as Sensitive at
the other facility but is not flagged as Sensitive at your facility.

Remote User Who Flagged the Pt as Sensitive: CARLSON-GOTTS,NANCY
Date/time remote user Flagged Pt Sensitive:  Feb 04, 1998@13:38
```

Address Change

Finally, the system checks the incoming message to see if any of the address-related information is different than the current information in the receiving site's database. The specific fields checked are: Street Address [LINE 1], Street Address [LINE 2], Street Address [LINE 3], City, State, ZIP+4, and County. The message tells you that Address fields were deleted from your data based on more recent information from the CMOR site.

```
Subj: BURNETT **CIRN ADDRESS CHANGE**  [#93349] 22 Apr 98  10:44  14 Lines
From: CIRN PACKAGE  in 'IN' basket.   Page 1  **NEW**
---------------------------------------------------------------------------

The CIRN Package has received a message from:
ALLEN PARK, MI --> Site Number: 553
This message changed the Address of Patient:
BURNETT,COREL

   <<OLD ADDRESS>>                                          <<NEW ADDRESS>>

STREET ADDRESS [LINE 1]: 2979 MAPLE  COURT                        SAME
STREET ADDRESS [LINE 2]: APARTMENT 2B                             DELETED
STREET ADDRESS [LINE 3]:                                          SAME
CITY: ROUND LAKE                                            ROUND LAKE
COUNTY: CATTARAUGUS
CATTARAUGUS
STATE: NEW YORK                                             NEW YORK
ZIP+4: 99999                                                99999
```

Master File Update Messages

These messages concern any changes in Treating Facility for a particular patient. Only two validation checks are performed for these messages, as there is a lesser amount of data in the HL7 Treating Facility update message.

Locate the Patient in the Database

The first thing the software does is to parse out the ICN and attempt to find the patient whose treating facility list requires the update. If the system doesn't find the patient in the database, it generates a Patient Not Found bulletin. The format of this Patient Not Found bulletin is slightly different from the Patient-related Patient Not Found bulletin because the incoming data is different, but the principle is the same.

```
Subj: CIRN - PATIENT NOT FOUND  [#92985] 10 Mar 98  16:01  10 Lines
From: CIRN PACKAGE  in 'IN' basket.   Page 1
---------------------------------------------------------------------------

The CIRN Package has received a message from:
 ALLEN PARK, MI --> Site Number: 553
```

```
This patient has your station as a subscriber, however
the patient was not found in your database.

------------------------------------------------------
Remote Data

FIELD: CMOR = 553
FIELD: MFE = MFE^MAD^^19970922^553~ALLEN PARK, MI~VA~500002791~ICN~VA
FIELD: MFI = MFI^TFL^^UPD^^^NE
FIELD: SENDING SITE = 553
```

Do a Match on CMOR (CMOR Lookup Failed)

The second check the system does for Treating Facility updates is to compare the patient's CMOR in the update message to that in the receiving system. This is just an additional check in order to insure that the correct patient was selected. Not much identifying information is sent in the TF messages; consequently, data fields such as Name or SSN cannot be checked - only CMOR. If the CMORs fail to match, the software generates an Inconsistent Data bulletin, again similar in functionality to the one for Patient-related messages, but different in format because the data in the incoming HL7 message is different.

```
Subj: CIRN - INCONSISTENT DATA  [#93100] 27 Mar 98  13:18  15 Lines
From: CIRN PACKAGE  in 'IN' basket.   Page 1  **NEW**
------------------------------------------------------------------

The CIRN Package has received a message from:
ALBANY, NY --> Site Number: 500
This message contains data that is inconsistent
with your site's data.

Local Name: BURNETT,CARAL
Local SSN: 887438885
Local ICN: 1000304603
Local CMOR: BATAVIA
------------------------------------------------------
Remote Data

MSH^~|\&^VAFC PIMS^500^VAFC PIMS^500^19980327124412^^MFN~M05^236^P^
USA
MFI^TFL^^REP^^^NE^500~ALBANY, NY
MFE^MAD^^19980311^500~ALBANY, NY~VA~1000304603~ICN~VA
```

CIRN Exception Messages

Patient DFN Failed

The Patient DFN Failed message indicatesithat the inbound message could not identify the patient using the ICN number passed.

```
Subj: CIRN Exception: Patient DFN Failed  [#14331286] 10 Apr 99 11:33  1 Line
From: HL7 Msg#5462795  1 of 1 Response read.  in 'IN' basket.   Page 1
-------------------------------------------------------------------------
Patient DFN Failed: Msg#5462795 Bad DFN, -1^ICN NOT IN DATABASE, for DOE,JOHN
(ICN#1000654314)


See Appendix F of the Clinical Information Resource Network
Patient Demographics (CIRN-PD) and Master Patient Index (MPI) Installation and
Implementation Guide.

Select MESSAGE Action: IGNORE (in IN basket)//
```

SSN Matched Failed

SSN Matched Failed identifies that the inbound subscription message ICN and SSN for that patient does not match what is on your system.

```
Subj: CIRN Exception: SSN Match Failed  [#14312177] 09 Apr 99 20:17  1 Line
From: HL7 Msg#263  in 'IN' basket.   Page 1  **NEW**
-------------------------------------------------------------------------
SSN Match Failed: SSN on File = 427050521P SSN in Message =     MESSAGE #
33780
68 around line number 992

See Appendix F of the Clinical Information Resource Network
 Patient Demographics (CIRN-PD) and Master Patient Index (MPI) Installation
and Implementation Guide.

Select MESSAGE Action: IGNORE (in IN basket)//
```

Missing/Unable to get Logical Link

This message is used if a logical link could not be found for an outbound message. You will need to verify HL*1.6*39 successfully installed.

CIRN HL7 Exception Messages Related to MPI (V*IST*A)

During the processing of HL7 messages for the MPI and CMOR options, it's possible for CIRN HL7 Exception (problem) e-mail messages to be generated. These messages serve to notify IRM and/or MAS personnel of dilemmas or situations that have been encountered. Listed below are the mail groups to which these exception messages are sent, depending on the nature of the problem. They are listed by mail group name, type of problem, and recommended mail group members.

1. Members of the RG CIRN DEMOGRAPHIC ISSUES mail group are automatically notified of problems relating to data, such as:

- Patient's dates of death not being synchronized between your local Patient file (#2) and the MPI.
- Patient entries with missing required field(s) (i.e., Date of Birth or Name) when trying to add them to the MPI.
- Potential matches were found during the initialization or during the Local/Missing ICN resolution job that need to be resolved manually in order to obtain an ICN.

  It is recommended that MAS personnel (i.e., ADPACs and/or Coordinators, etc.) be made members of this mail group.

2. Members of the MPIF EXCEPTIONS mail group are automatically notified of technical type problems (e.g., such as data update failures or problems with HL7 messages causing them not to be processed). It is recommended that IRM personnel be made members of this mail group.

Sample Exception Messages

This section provides sample CIRN Exception messages and/or gives descriptions of the types of messages that are sent from the MPI to the mail groups RG CIRN DEMOGRAPHIC ISSUES and MPIF EXCEPTIONS. The information is categorized by audience: by IRM and MAS Personnel, respectively. They are provided to give you an idea of what you can expect to receive if you are a member of either of these mail groups.

Sample Exception Messages — MAS Personnel

This section is comprised of sample CIRN Exception messages that require action by MAS Personnel who are members of the mail group: RG CIRN DEMOGRAPHIC ISSUES.

CIRN Exception Message: Required field(s) Date of Birth or Name missing for Patient sent to MPI

This message is sent to MAS personnel during the initialization of the MPI with your local Patient file if the required fields Name and Date of Birth have not been populated. These required fields must have values before patients can be assigned ICNs. After they are populated, you must use the MPI (**V***ST***A**) option Single Patient Initialization to obtain the ICN assignment.

```
Subj: CIRN Exception: Required field(s) Date of Birth or Name missing for
patient sent to MPI [#11488656]  24 Oct 98 12:48  1 Line
From: HL7 Msg#126520  in 'IN' basket.   Page 1  **NEW**
---------------------------------------------------------------------
For Patient DFN=123450  Need required fields before patient can be processed
again the MPI.

Select MESSAGE Action: DELETE (from IN basket)//
```

Examples of Common Exception Messages Requiring MAS Interaction

The sample CIRN Exception messages on the following pages are more common and may be encountered during the implementation phase and throughout the daily operations of the MPI and CIRN PD.

CIRN Exception Message: Multiple ICNs

This message is intended for interaction by MAS personnel who are responsible for resolving potential duplicates in the Patient file. This sample message shows that the MPI identified both of these patients as being the same person. However, CIRN/MPI Business Rules prevents two or more patients in the same Patient file from having the same ICN.

(For more information on CIRN/MPI Business Rules, see Appendix A in this manual.)

```
Subj: CIRN Exception: Multiple ICNs  [#707] 18 Mar 99  08:19  1 Line
From: HL7 Msg # 10345 in 'IN' basket.   Page 1
---------------------------------------------------------------------

Multiple ICNs: Patient dfn 12864 returned ICN 1000923833 that is already in
use for Patient dfn 18789 use Duplicate Record Merge to Checkout pair


Select MESSAGE Action: DELETE (from IN basket)//
```

CIRN Exception Message: Potential Matches Returned

This exception message is used to inform MAS personnel that a patient could not be assigned an ICN because potentially matching entries were found in the MPI that closely match the patients identifying information. The MPI (**V***ST***A**) option Single Patient Initialization must be used to manually resolve this problem.

```
Subj: CIRN Exception: Potential Matches Returned  [#42113] 25 Mar 99  13:03  1
Line
From: HL7 Msg#102598  in 'IN' basket.   Page 1  **NEW**
---------------------------------------------------------------------

Potential Matches Returned: For Patient DFN=20897.  Use Single Patient
Initialization to MPI option to manually process.


Select MESSAGE Action: IGNORE (in IN basket)//
```

The next three sample CIRN Exception messages are used to inform MAS personnel that this patient is thought to be deceased, and that information doesn't match between the Patient file at your facility and the MPI.

CIRN Exception Message: Death Entry on MPI not in V*ST*A

This exception message is used to inform MAS Personnel that the Date of Death field is populated in the MPI for a particular patient. However, that same field is **not** populated in your local Patient file.

```
Subj: CIRN Exception: Death Entry on MPI not in VISTA  [#42126] 25 Mar 99
13:04  1 Line
From: HL7 Msg#102605  in 'IN' basket.   Page 1  **NEW**
---------------------------------------------------------------------------

Death Entry on MPI not in VISTA: Around line 512 MPI DOD= JUL 23,  1998  DFN=
472  MESSAGE# 1662467


Select MESSAGE Action: IGNORE (in IN basket)//
```

CIRN Exception Message: Death Entry on V*ST*A not in MPI

This exception message is used to inform MAS Personnel that the Date of Death field is populated in your local Patient file for this patient. However, that same field is **not** populated in the MPI.

```
Subj: CIRN Exception: Death Entry on Vista not in MPI  [#42212] 25 Mar 99
13:14  1 Line
From: HL7 Msg#102652  in 'IN' basket.   Page 1  **NEW**
---------------------------------------------------------------------------

Death Entry on Vista not in MPI: Around line 302 VISTA DOD= FEB 28,  1998  DFN=
34215  MESSAGE# 1662863


Select MESSAGE Action: IGNORE (in IN basket)//
```

CIRN Exception Message: Death Entries on MPI and V*ST*A DO NOT Match

This exception message is used to inform MAS Personnel that both the MPI and your local Patient file have different dates of death for the same patient.

```
Subj: CIRN Exception: Death Entries on MPI and Vista DO NOT Match [#42212] 25
Mar 99 13:14  1 Line
From: HL7 Msg#102652  in 'IN' basket.   Page 1  **NEW**
---------------------------------------------------------------------------

Death Entries on MPI and Vista DO NOT Match: Around line 302 VISTA DOD= FEB
28, 1998  MPI DOD = MAR 30, 1996  DFN= 34215 MESSAGE# 1662863


Select MESSAGE Action: IGNORE (in IN basket)//
```

CIRN Exception Message: SSN Match Failed

This exception message is used to inform MAS personnel that there might be a discrepancy in a patient's SSN between your local Patient file and the MPI. In this example, the facilities local Patient file has a pseudo SSN for a patient. However, the MPI does **not** have one at all (i.e., the field is not populated in the MPI).

Another example of an event that would cause this message to fire is where an SSN might be populated in both your local Patient file and the MPI for the same patient. However, the values are different (e.g., the site has a pseudo SSN and the MPI has a "national" SSN for the same patient). Based on a review by MAS personnel, it can be decided if the SSN should be updated in your local Patient file.

```
Subj: CIRN Exception: SSN Match Failed  [#43914] 25 Mar 99  15:04  1 Line
From: HL7 Msg#109087  in 'IN' basket.   Page 1  **NEW**
---------------------------------------------------------------------------

SSN Match Failed: SSN on File = 407041148P SSN in Message = MESSAGE # 1675216
around line number 302


Select MESSAGE Action: IGNORE (in IN basket)//
```

CIRN Exception Message: Name Doesn't Match

This exception message is used to inform MAS personnel that the Name returned from MPI does not match entry in your local Patient file. This message should be forwarded to the MAS Coordinator at your facility to see if this patient's name should be updated in the local Patient file.

```
Subj: CIRN Exception: Name Doesn't Match  [#11485765] 24 Oct 98  10:59  1 Line
From: HL7 Msg#10265245  in 'IN' basket.   Page 1
---------------------------------------------------------------------------

Name Doesn't Match: Name on File = LALONDE,ROBERT WILLIAM SR  Name in Message
= LALONE,BOB W  MESSAGE# 5261579 around line number 972

Select MESSAGE Action: DELETE (from IN basket)//
```

Appendix G - Trouble Shooting

If messages do not appear to be going out or if the state of the link is "openfail", use the HL7 Monitor incoming & outgoing filers option [HL FILER MONITOR] to check that the link has been started. A state of "openfail" signifies a problem with the UCX service (VMS/DSM sites) at your site or the site to which you are sending. It may also indicate a problem with the setup of the Logical Link, such as an incorrect or missing IP address. Shutdown the logical link via the appropriate HL7 option. Now check the HL Logical Link and the HL Lower Level Protocol Parameter file for this link. This can to checked via FileMan.

Example:

```
DEV,CRN>D P^DI
VA FileMan 21.0
Select OPTION: INQUIRE TO FILE ENTRIES
OUTPUT FROM WHAT FILE: PROTOCOL// 870  HL LOGICAL LINK (173 entries)
Select HL LOGICAL LINK NODE: MPIVA
ANOTHER ONE:
STANDARD CAPTIONED OUTPUT? Yes// <RET>  (Yes)
Include COMPUTED fields:  (N/Y/R/B): NO// BOTH Computed Fields and Record
Number (IEN)

NUMBER: 51                          NODE: MPIVA
INSTITUTION: MPI                    LLP PARAMETERS: MPIVA TCP
  LLP ONLINE: NO                    STATE: SHUTDOWN
  TIME STOPPED: 2570                     SHUTDOWN LLP ?: YES
  QUEUE SIZE: 10

Select OPTION: INQUIRE TO FILE ENTRIES
OUTPUT FROM WHAT FILE: HL LOGICAL LINK// 1  HL LOWER LEVEL PROTOCOL PARAMETER
(191 entries)
Select HL LOWER LEVEL PROTOCOL PARAMETER NAME: MPIVA TCP
ANOTHER ONE:
STANDARD CAPTIONED OUTPUT? Yes//  <RET> (Yes)
Include COMPUTED fields:  (N/Y/R/B): NO// BOTH Computed Fields and Record
Number (IEN)
DISPLAY AUDIT TRAIL? No//  <RET> NO
NUMBER: 60                              NAME: MPIVA TCP
LLP TYPE: TCP                    TCP/IP ADDRESS:
TCP/IP PORT: 5001        TCP/IP SERVICE TYPE: CLIENT (SENDER)
```

We see that the TCP/IP address isn't populated. Use VA FileMan to add the correct TCP/IP Address. Once that is done, restart the link and the messages should start going out.

If the acknowledgement messages don't show up after giving the MPI time to process the messages, the first place to check is the UCX service. First find the UCX service that you set up for your sites TCP/IP listener and make sure that it is enabled, in this case HLSEVEN.

VSM capture:

```
A12>UCX
UCX> SHOW SERVICE

Service             Port  Proto    Process          Address            State

BIND                  53  TCP,UDP  UCX$BIND         0.0.0.0             Disabled
BOOTP                 67  UDP      UCX$BOOTP        0.0.0.0             Enabled
ESNMP                242  UDP      ESNMP            0.0.0.0             Disabled
FTP                   21  TCP      UCX$FTPD         0.0.0.0             Enabled
HLSEVEN             5000  TCP      HLSEVEN          0.0.0.0             Disabled
LPD                  515  TCP      UCX$LPD          0.0.0.0             Disabled
SNMP                 161  UDP      UCX$SNMP         0.0.0.0             Enabled
TELNET                23  TCP      not defined      0.0.0.0             Enabled
TFTP                  69  UDP      UCX$TFTP         0.0.0.0             Enabled
XMINETMM              25  TCP      xminet           0.0.0.0             Enabled
UCX>
```

In this example, we can see that the service is disabled and needs to be enabled.

If the service is enabled and still messages are not being received, we should check the COM file for the UCX service to be sure that it is correct.

To check the directory where the .COM file resides, we will need to view the UCX service in Full.

VMS example:

```
A12>
A12>UCX
UCX>SHOW SERVICE HLSEVEN/FULL
Service: HLSEVEN
                                State:     Enabled
Port:             5000     Protocol:  TCP             Address:  0.0.0.0
Inactivity:          5      User_name: HLSEVEN         Process:  HLSEVEN
Limit:              10     Active:      0             Peak:       1

File:         SYS$SYSDEVICE:[HLSEVEN]HLSEVEN.COM
Flags:        Listen

Socket Opts:  Rcheck Scheck
 Receive:            0     Send:               0

Log Opts:     None
 File:        SYS$SYSDEVICE:[HLSEVEN]HLLOG.COM

Security
 Reject msg:  not defined
 Accept host: 0.0.0.0
 Accept netw: 0.0.0.0
UCX>
```

Examine the .COM file that UCX uses to deliver the HL7 messages to DSM:
The bolded line below is where the problem was in this example. If this command is not correct, messages will not get delivered into the DSM environment. The number 999 should be the internal entry number (IEN) from File 870 of your institutions logical link. This is the most common problem with this COM file.

```
$!HLSEVEN.COM - for incoming connect requests
$!--------------------------------------------------------------------
$ set noon !Don't stop
$ set verify
$ purge/keep=2 sys$login:*.*
$ set proc/priv=(share) !Required to use the MBX device
$ x=f$trnlnm("sys$net") !This is our MBX device
$ write sys$output x !This can be viewed in the log file
$ set nover !Turn off verify
$!--------------------------------------------------------------------
$! **Be sure this command line is correct for your system
$! **and if access control is enabled that this account has
$! **access to this uci,vol & routine. The number 999 should be replaced
$! **with the internal entry number in file 870 for this Logical Link
$! /
$ dsm/environ=MGRISC/uci=VAH/vol=ROU/data="''x'^999" EN^HLCSTCP
$!--------------------------------------------------------------------
$ logout/brief
```

Appendix H HL Logical Links and Institutions

- This list has been altered to show more data to help you to resolve any missing institutions.

Note: Local names in the Institution file may not match the names displayed in this list exactly. You may wish to use Station Numbers to help you get the correct Institution associated with the correct Logical Link.

CIRN HL LOGICAL LINK List

NODE	INSTITUTION	STATE	STATION #
VAALB	ALBUQUERQUE	NEW MEXICO	501
VAALN	ALBANY	NEW YORK	500
VAALT	ALTOONA	PENNSYLVANIA	503
VAALX	ALEXANDRIA	LOUISIANA	502
VAAMA	AMARILLO	TEXAS	504
VAANC	ANCHORAGE	ALASKA	463
VAANN	ANN ARBOR	MICHIGAN	506
VAASH	ASHEVILLE	NORTH CAROLINA	637
VAATG	ATLANTA	GEORGIA	508
VAAUG	AUGUSTA	GEORGIA	509
VABAC	BATTLE CREEK	MICHIGAN	515
VABAN	BATH	NEW YORK	514
VABAY	BAY PINES	FLORIDA	516
VABEC	BECKLEY	WEST VIRGINIA	517
VABED	BEDFORD	MASSACHUSETTS	518
VABHH	BLACK HILLS HCS	NORTH DAKOTA	568
VABIG	BIG SPRING	TEXAS	519
VABIL	BILOXI	MISSISSIPPI	520
VABIR	BIRMINGHAM	ALABAMA	521
VABOI	BOISE	IDAHO	531
VABOS	BOSTON	MASSACHUSETTS	523
VABRK	BROCKTON	MASSACHUSETTS	525
VABRX	BRONX	NEW YORK	526
VABUT	BUTLER	PENNSYLVANIA	529
VABYN	BROOKLYN	NEW YORK	527
VACAH	CENTRAL ALABAMA	ALABAMA	619
VACAN	CANANDAIGUA	NEW YORK	532
VACHA	CHARLESTON	SOUTH CAROLINA	534
VACHS	CHICAGO HCS	ILLINOIS	537
VACHY	CHEYENNE	WYOMING	442
VACIH	CENTRAL IOWA HCS	IOWA	555
VACIN	CINCINNATI	OHIO	539
VACLA	CLARKSBURG	WEST VIRGINIA	540
VACLE	CLEVELAND	OHIO	541

VACLL	CHILLICOTHE	OHIO	538
VACMO	COLUMBIA, MO	MISSOURI	543
VACMS	COLUMBIA, SC	SOUTH CAROLINA	544
VACOA	COATESVILLE	PENNSYLVANIA	542
VACON	CONNECTICUT NCS	CONNECTICUT	689
VACOS	COLUMBUS	OHIO	757
VACTX	CENTRAL TEXAS HCS	TEXAS	674
VADAN	DANVILLE	ILLINOIS	550
VADAY	DAYTON	OHIO	552
VADEN	DENVER	COLORADO	554
VADET	DETROIT	MICHIGAN	553
VADUB	DUBLIN	GEORGIA	557
VADUR	DURHAM	NORTH CAROLINA	558
VAEKH	TOPEKA	KANSAS	677
VAELP	EL PASO	TEXAS	756
VAERI	ERIE	PENNSYLVANIA	562
VAFAR	FARGO	NORTH DAKOTA	437
VAFAV	FAYETTEVILLE, AR	ARKANSAS	564
VAFC-SEND	These two entries should not		
VAFH-SEND	have Institutions and are not related to CIRN or MPI.		
VAFHM	FT HARRISON	MONTANA	436
VAFNC	FAYETTEVILLE, NC	NORTH CAROLINA	565
VAFRE	FRESNO	CALIFORNIA	570
VAFTL	FT LYON	COLORADO	567
VAGAI	GAINESVILLE	FLORIDA	573
VAGNH	GREATER NEBRASKA HCS	NEBRASKA	597
VAGRJ	GRAND JUNCTION	COLORADO	575
VAHAM	HAMPTON	VIRGINIA	590
VAHIN	HINES	ILLINOIS	578
VAHON	HONOLULU	HAWAII	459
VAHOU	HOUSTON	TEXAS	580
VAHUN	HUNTINGTON	WEST VIRGINIA	581
VAHVH	HUDSON VALLEY HCS	NEW YORK	620
VAIND	INDIANAPOLIS	INDIANA	583
VAIOW	IOWA CITY	IOWA	584
VAIRO	IRON MOUNTAIN	MICHIGAN	585
VAJAC	JACKSON	MISSISSIPPI	586
VAKAN	KANSAS CITY	MISSOURI	589
VALAS	LAS VEGAS	NEVADA	593
VALEB	LEBANON	PENNSYLVANIA	595
VALEX	LEXINGTON	KENTUCKY	596
VALIT	LITTLE ROCK	ARKANSAS	598
VALOM	LOMA LINDA	CALIFORNIA	605
VALON	LONG BEACH	CALIFORNIA	600
VALOU	LOUISVILLE	KENTUCKY	603
VAMAC	NORTHERN CALIFORNIA HCS	CALIFORNIA	612
VAMAD	MADISON	WISCONSIN	607
VAMAN	MANCHESTER	NEW HAMPSHIRE	608
VAMAR	MARYLAND NCS	MARYLAND	512

VAMEM	MEMPHIS	TENNESSEE	614
VAMIA	MIAMI	FLORIDA	546
VAMIN	MINNEAPOLIS	MINNESOTA	618
VAMIW	MILWAUKEE	WISCONSIN	695
VAMOU	MOUNTAIN HOME	TENNESSEE	621
VAMPI	MANILA	PHILIPPINES	358
VAMRN	MARION	ILLINOIS	609
VAMUR	MURFREESBORO	TENNESSEE	622
VAMUS	MUSKOGEE	OKLAHOMA	623
VAMWV	MARTINSBURG	WEST VIRGINIA	613
VANAS	NASHVILLE	TENNESSEE	626
VANCH	NORTH CHICAGO	ILLINOIS	556
VANHM	NORTHAMPTON	MASSACHUSETTS	631
VANIN	NORTHERN INDIANA HCS	INDIANA	610
VANJH	NEW JERSEY HCS	NEW JERSEY	561
VANOL	NEW ORLEANS	LOUISIANA	629
VANOP	NORTHPORT	NEW YORK	632
VANTH	NORTH TEXAS HCS	TEXAS	549
VANYN	NEW YORK	NEW YORK	630
VAOKL	OKLAHOMA CITY	OKLAHOMA	635
VAOMA	OMAHA	NEBRASKA	636
VAPAL	PALO ALTO HCS	CALIFORNIA	640
VAPHI	PHILADELPHIA	PENNSYLVANIA	642
VAPHO	PHOENIX	ARIZONA	644
VAPOP	POPLAR BLUFF	MISSOURI	647
VAPOR	PORTLAND	OREGON	648
VAPRE	PRESCOTT	ARIZONA	649
VAPRO	PROVIDENCE	RHODE ISLAND	650
VAPTH	PITTSBURGH HCS	PENNSYLVANIA	646
VAPUG	PUGET SOUND HCS	WASHINGTON	663
VAREN	RENO	NEVADA	654
VARIC	RICHMOND	VIRGINIA	652
VAROS	ROSEBURG	OREGON	653
VASAG	SAGINAW	MICHIGAN	655
VASAJ	SAN JUAN	PUERTO RICO	672
VASAM	SALEM	VIRGINIA	658
VASBY	SALISBURY	NORTH CAROLINA	659
VASDC	SAN DIEGO	CALIFORNIA	664
VASFC	SAN FRANCISCO	CALIFORNIA	662
VASHE	SHERIDAN	WYOMING	666
VASHR	SHREVEPORT	LOUISIANA	667
VASLC	SALT LAKE CITY	UTAH	660
VASPO	SPOKANE	WASHINGTON	668
VASTC	ST CLOUD	MINNESOTA	656
VASTL	ST LOUIS	MISSOURI	657
VASTX	SOUTH TEXAS HCS	TEXAS	671
VASUX	SIOUX FALLS	SOUTH DAKOTA	438
VASYR	SYRACUSE	NEW YORK	670

VATAM	TAMPA	FLORIDA	673
VATOG	TOGUS	MAINE	402
VATOM	TOMAH	WISCONSIN	676
VATUA	TUSCALOOSA	ALABAMA	679
VATUC	TUCSON	ARIZONA	678
VAWAS	WASHINGTON DC	DISTRICT OF COLUMBIA	688
VAWBP	WILKES BARRE	PENNSYLVANIA	693
VAWCO	WHITE CITY	OREGON	692
VAWIC	WICHITA	KANSAS	452
VAWIM	WILMINGTON	DELAWARE	460
VAWLA	WEST LOS ANGELES	CALIFORNIA	691
VAWNY	WESTERN NEW YORK NCS	NEW YORK	528
VAWPB	WEST PALM BEACH	FLORIDA	548
VAWRJ	WHITE RIVER JUNCTION	VERMONT	405
VAWWW	WALLA WALLA	WASHINGTON	687

MPIVA	MPI	200M
MPIVA DIR	<<the institution field should not be populated	

If you received any messages noting "Couldn't resolve Institution" <fill in the institution name> "for Logical Link" <fill in link name> while installing patch HL*1.6*39 in production or the logical link build for the test account, the following should help you resolve these entries.

- Use VA FileMan to enter any data that couldn't be resolved during the installation of patch HL*1.6*39:

Example of unresolved institution/logical link message: "Couldn't resolve Institution DETROIT for Logical Link VADET"

```
Select VA FileMan Option: Enter or Edit File Entries
INPUT TO WHAT FILE: // HL LOGICAL LINK
EDIT WHICH FIELD: ALL// .01 NODE
THEN EDIT FIELD:INSTITUTION

Select HL LOGICAL LINK NODE: VADET  <insert the links that need institutions
NODE: VADET// <ret>
INSTITUTION: DETROIT    <<you could also enter station number
     1   DETROIT                  MI                   MC(M)     553
     2   DETROIT-RO               MI                   RO        329
CHOOSE 1-2: 1  DETROIT            MI                   MC(M)     553
```

NOTE: In the example above no data from the INSTITUTION file came up for LLP VADET because there was no pointer relationship established. If you were to invoke the same edit template on this entry again, the display would look like this - allowing the entry of any pertinent missing INSTITUTION file data.

```
Select HL LOGICAL LINK NODE: DETROIT      MI         MC(M)     553  VADET
NODE: VADET//
INSTITUTION: DETROIT//
```

Appendix I – Routines to Map/Unmap

This is a list of the routines that could possibly be mapped.

DG*5.3*149 ROUTINES

DG10 SDLT
DG53149P
DGDEATH
DGNFUNC
DGPATV
DGREG
DGREG0
DGREG00
DGRPD
DGRPT
DGSEC1
VAFCA04
VAFCDD01
VAFCEHLM
VAFCEHU1
VAFCEHU2
VAFCEHU3
VAFCEHU4
VAFCHIS
VAFCMG01
VAFCMGA
VAFCMGA1
VAFCMGB
VAFCMGB0
VAFCMGB1
VAFCMGB2
VAFCMGB3
VAFCMGB4
VAFCMGU0
VAFCMIS
VAFCMS02
VAFCMSG
VAFCMSG0
VAFCMSG1
VAFCMSG3
VAFCMSG4
VAFCPID
VAFCPID2
VAFCPTAD
VAFCPTED

VAFCTFMF
VAFCTFPR
VAFCTFU
VAFCUTL
VAFCUTL1
VAFHLMFE
VAFHLMFI
VAFHLOBX
VAFHLPD1
VAFHLZS